# THE EFFECTS OF PERSONALIZED LEARNING ON STUDENTS' ATTENDANCE
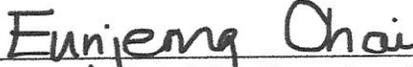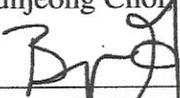
# IN A WISCONSIN PUBLIC ELEMENTARY SCHOOL

BY

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**ABSTRACT**

Pressure to improve academic success for all students has been applied to the educational

While school personnel create programs and implement innovative instructional

pedagogy, such as personalized learning to prioritize students and improve their academic

success, research demonstrates the essential role of students' attendance in these

processes. The purpose of this quantitative study was to identify the impact of

personalized learning on students' school attendance within one Wisconsin public school

where school leadership transitioned from the traditional teaching model to a

personalized learning approach. The sample included the census from fourth-grade

population of two elementary schools within a public-school district in the Midwest

region of the United States. The research design was both comparative and ex-post facto.

The data were analyzed using both descriptive and inferential statistics, using both the

Independent Sample *T test* and Chi-Square Test of Independence for analysis. Two

research questions and hypotheses were generated to help determine the impact of

personalized learning on students' attendance. The researcher concluded that there was a

significant difference in reasons for absences but no significant differences in the average

attendance of students. Further, this study provides suggestions regarding practical

applications, such as targeting the contributing variables for new instructional models and

voice and choice of learner. Additional recommendations include conducting further

research considering the impact of personalized learning on state testing as well as

research considering other variables, such as race and gender.

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# ACKNOWLEDGMENTS

# CHAPTER 1: INTRODUCTION TO THE STUDY

The educational system today is under momentous pressure from federal, state, and local legislators to improve academic success for all students (Sugai & Horner, 2006). Thus, academic success is the primary goal for all stakeholders, including parents, students, and teachers within this system. However, defining academic success or even student achievement is no easy task. It is clear from the literature on academic success that the term can be interpreted differently by those in the education field. While Kuh et al. (2006) argue academic success is defined as achievement, engagement in educationally purposeful activities, acquisition of desired knowledge, and attainment of educational outcomes. Parker et al. (2004) defined academic success by solely relying on student GPA. Considering all the definitions, this study adopts the definition provided by Cachia et al. (2018) who defined academic success as *the accomplishment of the learning process, gaining subject knowledge, and developing employability skills*. In application, the Cachia et al. (2018) definition indicates the learner can acquire knowledge from the classroom that will foster academic growth. This knowledge can also contribute to transferable skills useable in the world outside of academia. While school personnel create a variety of programs to improve students' academic success and to address the issue of school accountability, research continues to demonstrate the essential role of school attendance, as a means of student engagement in these processes. Student engagement is a behavior such as degree of attention, curiosity, and/or interest that the student demonstrates through participation (Fredricks et al., 2011). Thus, student disengagement has become a growing concern in education on a national level (Willms et al., 2009). This concern is growing because as students become disengaged, they miss

more instructional time (Balfanz & Byrnes, 2012). In 2018, a Gallup report that surveyed more than 5 million students in grades 5 through 12 reported that only about half of those students were engaged in school (47%), which accounted for a total of 53% who reported they were not engaged or actively disengaged in school. Moreover, these numbers demonstrate that a lack of student engagement in school is not exclusive to a specific age group (Fredricks et al., 2011). This issue is one that all educational leaders must consider as they develop instructional models to meet the needs of their students.

To address academic achievement and engagement in schools, educational leaders have implemented innovative changes to instructional pedagogy (Rickabaugh, 2016). One such change is the increased implementation of *personalized learning*, a research-based approach that considers education to be most holistic when the student is at the center of the learning focus. This technique is being used across the nation in schools and classrooms to better meet the needs of students and provide broader access to education for all (Basham et al., 2016; Gross, Tuchman, & Patrick; 2018; Halverson et al., 2015; Midwest Comprehensive Center, 2018; Pane, 2018; Pane et al., 2017). When a personalized learning approach is utilized, it transforms the classroom by shifting the learning process from focusing on the teacher to prioritizing the students' needs. In a personalized learning classroom, students are taught to be reflective of their individual learning processes. Also, in this classroom, learning becomes more flexible with where and how knowledge is obtained, technology is integrated in a purposeful manner, and students have more input regarding how they obtain and show mastery of curriculum (Zmuda et al., 2015).

While much research exists regarding how the personalized learning model positively impacts student achievement in academics (e.g., Green, 2017; Ford, 2018; Hurtienne, 2017; New, 2018), schools with federal mandates are under immense pressure to explore more nonacademic measures for state and federal accountability and student engagement (Jordan & Miller, 2017). Many schools have begun utilizing attendance rates as an accountability measurement because school attendance has been proven to strongly predict academic achievement and is also one of the strongest predictors of high school graduation (Rogers et al., 2016). Thus, attendance in public schools has become a focus more now than ever before (Balu & Ehrlich, 2018). To date, the effects of personalized learning on classroom attendance remains unclear in the literature.

To address this gap in the research regarding the personalized learning approach, this quantitative study investigated if switching to a personalized learning model would impact students' classroom attendance. This study closely examined how personalized learning affected the attendance of a public-school district, located in Wisconsin, and their entire fourth-grade student class during two academic school years. The assumption of this study based on the literature is that if personalized learning can increase the attendance of students in the classroom, then personalized learning will also impact the level of engagement of students, and thus, might have a positive impact on students' achievement. In the following sections of this chapter, I provide background information regarding the educational system, which includes an operational definition of personalized learning. Following that section, I examine a current problem within the field of education and how my study will directly address this problem. Lastly, I provide an overview of the methodology for this study and a chapter summary.

## Study Background/Foundation

School districts across the United States are transforming the design of education in areas in both teaching and learning under the philosophy that they must equip students with the necessary skills for the current workforce. These jobs require individuals who are innovative, creative, and can collaborate with others (Wagner, 2015). However, despite the changes in the current workforce, many educators still use traditional approaches to education (e.g., lectures, students sitting in rows, and memory and recitation testing), which causes students to become withdrawn or disengaged in the educational process. As a result of this disinterest, students often fail academically and, subsequently, become ill-prepared for their future careers (Yonezawa et al., 2010). Thus, when redesigning education, schools must consider student engagement and participation so that the students of today are ready for the workforce of tomorrow. Further, as educators work to meet the instructional needs of students, they must do so at a pace that will maintain the integrity of students' learning outcomes.

School personnel work to keep up with educational trends that increase student achievement (Allen et al., 2013) and improve attendance (Archambault et al., 2009). One of these trends, *personalized learning*, is gaining traction as an instructional model. This model prioritizes individual students' needs and interests rather than considering a one-size-fits all approach to classroom instruction. As such, a personalized learning approach creates the necessary skills for students to compete in their current educational environment, and it prepares them for the future workforce.

As personalized learning continues to grow as an instructional model to support both teachers and students, research has revealed varying advantages to utilizing this

model (Corry & Carlson-Bancroft, 2014). These instructional models include advantages for students (Neuzil, 2016; New 2018), teachers (Robert-Mahoney, 2014; Runner, 2018), and administrators (Robert-Mahoney, 2014). For example, personalized learning models encourage teachers to curate lessons based on the individual needs of students, rather than administering one lesson for all students (Metcalf, 2017). Additionally, students benefit from a personalized learning classroom because they are able to complete learning outcomes at their own rate and control their own learning experience (Archambault et al., 2010; Richardson, 2012).

Despite these efforts of implementing alternative learning approaches to shift educational pedagogies, districts still struggle with ensuring students attend school and go to class, which is necessary for student engagement and academic success (Fredricks, 2014). Students who attend their classes on a regular basis perform higher, academically, than their peers who have a high level of absenteeism (Balfanz & Byrnes, 2012). Yet, while students' attendance is a national issue in the field of education, it has not been studied when considering personalized learning. This study examined at the elementary school level the impact of personalized learning on students' attendance.  This study examined how implementing a personalized learning approach is associated with an increase in student attendance could help students become more engaged in the learning process; therefore, increasing attendance.

**Historical Background of Personalized Learning**

Thomas (2016) synthesized the works of Keller, Dewy, and Sizer, for educators to understand the present model of personalized learning in the *National Education Technology Plan.* While personalized learning is a current trend in K-12 education, it is

not a new concept. According to current literature, the timeline in the research revealed that components of personalized learning have existed for over 300 years and influence our current models of personalized learning today (Darling-Hammond et al., 2019).

Many researchers discovered that most of the foundation of what is understood about personalized learning can be contributed to Jean-Jacques Rousseau who, during the 1700s, believed that a singular curriculum for students built on individual voice and choice would create a greater motivation for all students to learn (Metcalf, 2017; New, 2017; Pilley, 2016;). In conjunction with Rousseau, the review of the literature revealed a large body of work contributed to John Dewey.

John Dewey, who is one of America's profound reformers of our education system, cited Rousseau's principle that education takes place most successfully when the learning is a necessity to children (Dewey & Dewey, 1915). Reconsidering the use of industry models of education (e.g., the banking and factory approach to education) equates to less generalization and more individualization. Individualization is one of the key components of personalized learning.

While personalized learning is a relatively new phenomenon that encourages teachers to meet the individual needs of students, it is important to note that teachers have attempted to meet the needs of students for years using the theory of differentiated instruction (Watson, 2018). Differentiated instruction is a practice in which teachers base their delivery methods on the student differences that exist within their classrooms (Watson, 2018). Differentiated instruction involves teachers adjusting their practices, including curriculum development, classroom environment, and strategies to meet the needs of their students (Gilbert, 2011). These types of instructional practices, within

differentiated instruction, focus more on how the student is learning rather than on the content the student receives. How the student learns ranges from the instructional practices used by the instructor to their support of their own educational philosophies. However, because teachers have so many students in their classrooms, using differentiated instruction does not allow them to personalize their lessons for all learning capacities. Instead, they are challenged to format their teaching structures according to the academically mid-level students (Price, 2018).

**Defining Personalized Learning**

While many educators are familiar with the term and concept of personalized learning, it has been challenging to determine a singular understanding or practice of the idea. Some definitions of personalized learning involve the teacher having a personalized relationship with the student (Green, 2017), whereas others rely heavily on the use of technology (Farmer, 2016; Metcalf, 2017; Piley, 2016). While many school districts seek to implement personalized learning without a concrete definition, researchers indicated that most districts' interpretations are relatively aligned with one or more commonly used definitions of personalized learning (Price, 2018).

To provide an overarching definition, the U.S. Department of Education defined personalized instruction in its *2010 Education Technology Plan* as instruction that is paced to the learner's needs, preferences, and tailored to the specific interests of different learners.

The role of student attendance, while under-researched within the personalized learning model, still remains a critical aspect of student achievement. Kuh et al., (2006) explained in this research on student engagement that two conditions leads to the learning

and development of students. One of this notion is anchored on student and attendance. Kuhn (2009) stated that the first component of student engagement involves the amount of time and effort that students commit and are present to their studies that leads them to experiences and outcomes that allows students to experience success. This study addresses attendance as a characteristics of student engagement and how personalized learning has an impact on these areas.

## Problem Statement

Though researchers, policymakers, practitioners, and parents have discovered positive relationships between school attendance and academic success (Gottfried, 2013), there has been minimal research found regarding whether personalized learning as an instructional model will increase a student's desire to attend school. When educational institutions create learning environments that are engaging and student-centered, students are more likely to attend school on a regular basis (Gottfried, 2010). One of the benefits of implementing personalized learning is the result of an increased level of student engagement based on students' academic performance or the desirable learning outcomes (Neuzil, 2016). Thus, further research is needed to determine if using the personalized learning approach affects student attendance.

This examined how the attendance of one local school district in the state of Wisconsin was impacted after the implementation of personalized learning as its new instructional model. As attendance of students is considered for school and district accountability, the further examination of instructional designs such as personalized learning is needed to better understand the impact. Further, understanding the dearth of

research regarding the effects of this learning approach on student attendance, this study will also address this critical issue.

**Audience**

For educators, students must remain the focus of all decisions that are made, and engagement is critical for student learning. As such, educators and other vital decision makers must be willing to find innovative ways to keep students engaged in the learning process, which may affect their attendance and participation in school. Failing to address students' lack of attendance creates an environment that hinders teachers and students from having an adequate educating and learning exchange. Continual research regarding students' attendance and the impact of personalized learning will create better options for teachers to reach students, students to acquire knowledge, and administrators to properly support both students and staff with meeting achievement and accountability standards.

**Specific Leadership Problem**

Educators, specifically school leaders and teachers, are charged with creating environments for students that will allow them to thrive inside the classroom and societally. This means leaders must implement systems which encourage students' individualized growth and progress and no longer operate using a one-size-fits-all system. Also, student engagement is vital in a learner-centered environment (Zhou, 2010). Chang and Romero (2008) reported that attendance is higher when schools provided an engaging learning experience for students. Thus, educators must continue to find ways to help reduce the number of student absences in the classroom so students remain engaged, which could be addressed by implementing a personalized learning model.

Across the public education system, educational leaders are now being held accountable for the absences of students. While much research exists on why students are absent from schools, the current field of literature still lacks research on how on implementation of many suggested instructional practices impact students' attendance (Bauer et al, 2018; Ginsburgh et al., 2014).

Overall, educational leaders—both administrators and teachers—must take heed of varying instructional methods, including personalized learning and the impact it has on students' school attendance to ensure success for all. This study provides educational leaders with research regarding the direct impact of personalized learning on student attendance. In addition, it will give leaders an innovative research-based option to address the high levels of disengagement in today's schools. Finally, this study will provide additional research to assist with creating systems to meet accountability standards.

## Purpose of the Study

As teachers consider issues that have a negative impact on the learning process, they also consider ways to be proactive when addressing such issues. These issues range from the impact of today's technology both in and out of the classroom to the need for more inclusive learning practices (Special Education [Sped], English Language Learners [ELL], and Gifted and Talented [GT]). Personalized learning is a growing and proactive approach that educators use to combat issues plaguing classrooms.

A review of the literature revealed several qualitative studies regarding personalized learning as a holistic approach (Green, 2017; Metcalf, 2017; Price 2018). Many of these studies identify how personalized learning is implemented from the perspectives of either the teacher or student (Pilley, 2016; Taylor, 2016). Few studies

have quantitatively evaluated the impact of personalized learning on students' classroom attendance. The purpose of this quantitative, causal-comparative study was to understand how personalized learning was associated with student's attendance within a public elementary school. This study will prove critical as personalized learning has been recognized as a model that equips students with 21st-century skills. The significance of this study can aid in the support of schools with accountability obligations, under the Every Student Succeeds Act (ESSA), which are held accountable for chronic absentees and are looking for ways to overcome this barrier.

## Methodology Overview

This study examined the entire fourth-grade population at a Wisconsin public school district who participated in personalized learning. To do so, this study used a quantitative methodological approach. The research design is both comparative and ex-post facto or quasi-experimental (Jackson, 2011). A convenience sampling technique was used to consider the accessibility of both the data and population. The data for this study is attendance data (date of absence and the number of minutes a student is absent) and reasons of absences of the population.

## Research Questions/Hypotheses

The following research questions guided the following study:

- **R1:** To what extent is there a difference in average attendance between students who received personalized learning and students who did not receive personalized learning?

- o **H$_{01}$:** There is no significant difference in average attendance between

  students who received personalized learning and students who did not

  receive personalized learning.

- o **H$_1$:** There is a significant difference in average attendance between

  students who received personalized learning and students who did not

  receive personalized learning.

- **R2:** To what extent is there a difference in reasons for absences between students

  who received personalized learning and students who did not receive personalized

  learning?

  - o **H$_{02}$:** There is no significant difference in reasons for absences between

    students who received personalized learning and students who did not

    receive personalized learning.

  - o **H$_2$:** There is a significant difference in reasons for absences between

    students who received personalized learning and students who did not

    receive personalized learning.

The goal of this study is to determine if personalized learning will impact student

attendance. The research questions will allow the researcher to examine these variables.

## Study Limitations

One potential study limitation is the sample size, which is considered small for

quantitative studies. This may indicate an improper representation of the broader

population. Another possible limitation of this study is the potential for outside variables

to impact the attendance of both those that receive personalize learning and those that do

not. These factors could include the gender and race of students, and their socioeconomic

levels or home life, as well as the conscious and unconscious biases of teachers. Lastly, two different schools were used for this study. Therefore, two variables, school culture and teachers, are not being studied and therefore creates another limitation for this study. All of these factors could have both positive or negative impacts on students' attendance.

## Study Delimitations

This study included the census of two elementary schools fourth-grade students from an urban school district located in Wisconsin, over the course of two academic school years. This study presents a small sample size, and therefore, the findings may or may not be generalized to other grade levels, regions, or student populations outside of the tested location.

## Definitions of Key Terms

*Academic success.* The accomplishment of the learning process, gaining subject knowledge, and developing employability skills (Cachia et al., 2018). For this study, academic success is considered a part of student engagement and will be measured through attendance.

*Attendance.* The number of days a student attends at least half the day (Gottfried, 2010)

*Every Student Succeeds Act.* Every Student Succeeds Act (ESSA) is the nation's main education law for all public schools that holds schools accountable for how students learn and achieve (Jordan & Miller, 2017)

*Personalized Learning*. The U.S. Department of Education (2017) defines personalized learning as instruction in which the pace of learning and the instructional approach are optimized for the needs of each learner. It is during this model that activities

are meaningful and relevant to the learners, driven by their interests, and often self-initiated (US. Department of Education, 2017).

## Summary

To encourage both personal and academic growth for today's students, many schools have implemented personalized learning in the classroom. This approach empowers educators to use a model in which students and their learning practices are the focus of education. While this model is being utilized by many school districts, little to no research has been gathered regarding how personalized learning may have an impact on attendance. As attendance is now becoming normalized for accountability, to determine success of students and graduation, it will become vital to understand how personalize learning might impact the attendance of the student body. The lack of research on these themes and other emergent topics will be furthered explored in Chapter 2, the Literature Review.

**CHAPTER 2: LITERATURE REVIEW**

In many of today's public, private, and charter school K-12 classrooms, teachers are no longer the keepers of students' knowledge. In an article regarding the influence of technology and classroom design, Sigal and Clayton (2016) described a historical shift within the field of education. With the increasing usage of instructional technology in education, the means by which students learn today and will continue to learn in the future have been profoundly redefined. Many new instructional technology applications have placed learning directly in the hands of students. In addition, this shift moved teaching and learning away from the historical educational models, such as the banking model (Freire, 1972) and the factory model (Scott-Webber, 2012), which all rely heavily on the delivery and recitation of content information (Siegal & Clayton, 2016). These models prescribe education as one-size-fits-all and fail to consider the learning styles of students.

In the current teaching environment, educators must consider a variety of ways for students to demonstrate proficiency of standards, earn high school credits, and retreat from the notion of the teacher being the sole learning facilitator. Educators are charged by legislators and parents with considering the needs of students and finding new ways to engage the learners. Horn (2017) contended that due to common teaching practices used in today's classrooms, it is necessary for educators to explore a new trend called *personalized learning* to develop models that fit the individual needs of students.

The U.S. Department of Education defined personalized instruction in its 2010 Education Technology Plan as instruction that is paced to the learning needs, tailored to the learning preferences and the specific interests of different learners. This definition, however, excludes one key aspect often used to describe personalized learning. This definition does not consider the ways in which *student engagement* is impacted by this new instructional model. Student engagement is a behavior such as degree of attention, curiosity, and/or interest that the student demonstrates through participation (Fredricks et al., 2011). Therefore, educators must ascertain whether the new instructional model being implemented increase students' attendance.

Available research has addressed the roles of the teachers and students, the benefits of personalized learning, the impact of personalized learning on instructional practices, and the overall perspective of students, teachers, and school administrators (Green, 2017; Pilley, 2016; Price, 2018). While much research has, and continues to be, done on personalized learning, one area in which a gap in research exists is how attendance is impacted by this new instructional model. Additionally, most relevant research has been conducted using qualitative research methods. This study will not only address the gap in literature but also use a quantitative method to add to the current body of research. This literature review explores the array of personalized learning definitions in order to provide context on how this instructional model is implemented to address both the students' and school's needs. Next, it discusses the historical context which integrates current research within the education field with the benefits of personalized

learning. Finally, this review identifies gaps in the literature regarding personalized learning.

## Definition of Personalized Learning

While many educators are familiar with the term and concept of personalized learning, it has been difficult to determine a singular understanding or practice of the idea because of the vast number definitions that exist within the current literature. However, two commonly used definitions supported by the literature (Ford, 2018; Price, 2018; Ter Horst, 2018) regarding personalized learning are from the International Association of K-12 Online Learning (iNACOL) and the Rand Corporation. The iNACOL (2015) defines personalized learning as tailoring learning for each student's strength, needs, and interests. This definition includes enabling student voice and choice regarding what, how, when, and where they learn, to provide flexibility and support to ensure mastery of the highest standards possible. The Rand Corporation (Pane et al., 2015), on the other hand, provides three significant observations that include focusing on productive use of student time and attention; using rigorous instructional materials; and maximizing the productive use of teacher skill, which focuses on systems and the students. iNACOL and the Rand Corporation provide a contextual definition, while Horn's (2017) body of work outlined a variety of definitions and frameworks.

Horn's (2017) research defined personalized learning so it could be easily understood by those who are unfamiliar with the model. It encourages practitioners to assess how personalized learning impacts the students. According to Horn (2017),

personalized learning mandates that the educators concern themselves with how they educate their students. As schools consider a personalized learning approach on education, they must not take into account the merit of personalization but the success of students that allows for each student to reach their maximum potential.

While many school districts seek to implement personalized learning without a concrete definition, researchers indicated that most districts' interpretations are fairly aligned with one or more commonly used definitions such as those from iNACOL and the Rand Corporation (Price, 2018). Regardless of the definition, the most successful learning environments are those in which students and teachers work collaboratively on their educational plan and when innovative instructional practices are used to ensure the success of all students and provide clear direction.

This study will converge around a definition that accounts for the key aspects of personalized learning such as voice and choice or student engagement. This study will examine how personalized learning impacts student engagement, particularly students' attendance.

## Key Components of Implementing Personalized Learning

As districts undertake the application of personalized learning, they must plan for the change and provide the necessary resources (Paton & McCalman, 2008). When discussing this approach, it is important to acknowledge the key components of implementing personalized learning: administrators and teachers as stakeholders, data, and personalized learning plans.

**School Administration**

Many times, the importance of school administration is forgotten when implementing change within the classroom. Ter Horst (2018) used a multi-case, qualitative method study to explore the impacts of the administration while implementing personalized learning within a school district. One of the common findings from this study was that schools did not have the support of administration, including principals, central office leaders, and school boards. They did not see positive outcomes of personalized learning as an instructional model. These same schools struggled to implement any changes within the school district effectively, as support must come from all levels. If a school has the support of the principal but not the support of the central office, regardless of the efforts of the remaining staff, the change will not be sustainable.

Although the administration implements personalized learning on a smaller scale, they are still vital when providing a clear understanding to support the efforts for student achievement and to provide support for teachers and peers as necessary (New, 2017). The support of administrators is needed because teachers need additional resources, and the implementation of personalized learning demands so much of their time, energy and effort (Ter Horst, 2018). This support and advocacy are needed outside of the classroom, and it is vital that this role is played by the school administration. The time, energy and effort provided to teachers affords both students and teachers the opportunity to be more flexible. It allows them to engage in more meaningful relationships that ultimately, allow students to more readily pursue their individual personal and academic goals (New,

2017). Therefore, the role of the administrator must be to advocate for and support the teachers during personalized learning efforts.

**Teachers**

Teachers are the foundation of the educational system. They can encourage students' success in the classroom and help transform them in ways that will last a lifetime. When implementing personalized learning in the classroom, teachers must be included in the decision-making process. The research regarding personalized learning concludes that the most vital person involved in the process is the teacher (Pilley, 2016; Taylor, 2016). It is while using personalized learning that teachers create curriculum and determine how their students will learn (Roberts-Mahoney, 2014). Pilley (2016) concluded that teachers implement personalized learning more frequently than other staff members in a building, including building administration, at a higher rate than any other staff in the building, including the building administrator. Thus, the role of the teacher is ever changing when implementing personalized learning (Neuzil, 2016; Runner, 2018), and teachers must be allowed to assume leadership roles when introducing the instructional model that will help them guide the learning process for their students. Providing teachers, the opportunity to lead will empower them to meet the expectation of differentiated learning for their students.

Many researchers have explored the role of the educator (Craig, Deretchin, & Digby, 2011; Neuzil, 2016), including Runner (2018), who conducted a qualitative study that identified specific roles of the teacher in personalized learning. The teacher must: (a)

offer specific feedback to students regarding their learning and ways that are helpful to students in a timely fashion; (b) be willing to adjust their pedagogical view as they implement personalized learning (i.e., loosen, tighten, or alter their viewpoint); and (c) identify the needs of their students and intentionally plan to learn tasks that will support students' understanding of content and the increased ability to problem-solve. These roles, as defined by Runner (2018), are critical in implementing personalized learning that center on meaningful relationships that create a more learner-friendly environment (Denton, 2017).

Runner (2018) explored the impact of personalized learning on student engagement, particularly for those living in poverty. The researcher discovered that school leaders, including teachers, must develop a culture with an open mindset about progress, relationships, and students. It requires them to believe that their role is to be change agents so all students can learn and progress. They must believe that achievement for all students is possible, and they must demonstrate to all students that they care about their learning, which presents as both powerful and effective.

**Data**

All students deserve the right to a quality education that affords them the opportunity to grow into productive citizens. To foster this level of quality education, educators must be aware of students' backgrounds, strengths, and the pathways that will lead them to being college and/or career ready. Thus, educators must use data in their decision-making processes and to serve students during their individual journeys.

Personalized learning requires collecting a large amount of student data. The collection of student data is not just about their academic performance but should also include the student's career goals, interests, and characteristics (Neuzil, 2016). These data points should inform teachers' decisions and encourage students to take an active role in the learning process.

According to Roberts-Mahoney (2014), data are not limited to teacher usage for determining what works for the students. Roberts-Mahoney (2014) identified two major usages for data and the impact it has on personalized learning. First, data have an impact on students, because it encourages them to set goals for themselves. Students can gauge which of their goals have been met or what tactics can be used to meet their goals. Second, the collection and usage of data allows teachers to collaborate with one another regarding students' outcomes and successes. The use and interaction of multiple data points is necessary to create personalized learning profiles for students.

**Personalized Learning Plans**

A Personalized Learning Plan (PLP) is an agreement between the learner and the instructor in which students outline their individual learning objectives, the strengths they contribute to the course, competencies they wish to develop, and what they are willing to do in pursuit of their objectives (Haney, 2017). Most PLPs are self-directed and allow the learner to build from their past experiences to master current learner outcomes. Typically, learning that is self-directed and based on individually developed objectives leads to a deeper, more permanent understanding (Haney, 2017).

Several studies have been conducted to develop personalized learning systems based on various student models that included technology, flexible schedules, personalized learning plans, and parental involvement (Neuzil, 2016; Roberts-Mahoney, 2014; Savio-Ramos, 2015). The model which is most often considered the best fit for personalized learning is one that employs the use of personalized learning plans.

Schools that have successfully implemented personalized learning plans have connected better with their students and find ways to engage them and keep their attention. Personalized learning plans have also helped schools capitalize on students' strengths as learners, enabling each student to connect with their instructor(s), progress based on knowledge and skills instead of seat time, and have more flexible learning environments (Savio-Ramos, 2015).

Neuzil (2016), in a study that explored the effects of personalized learning on student engagement, reported that students felt PLPs gave teachers more insight regarding how students learn best, and the learning plan allowed the students to truly thrive. Students who might have already mastered their outcomes, goals, and objectives were provided new opportunities to learn more about the topic or in a different manner. Consequently, students expressed that they noticed continuous growth that allowed for more reflection on the learning process. When students can identify their strongest skills and they are given the opportunity to develop their talents, they become more motivated and enthusiastic about learning.

**Benefits of Personalized Learning**

Pane, Steiner, Baird, and Hamilton (2015) conducted a study of schools that implemented personalized learning and discovered that students made significant gains in reading and math under the model. However, Piley (2016), who conducted a study on personalized learning and the effect on student achievement scores of elementary classroom students across a Midwest state, concluded that no significant gains were made in either reading or math scores of the participants. Hence, while there is still much debate regarding the overall benefits of personalized learning on student achievement, there is a significant amount of research that demonstrates the ways in which personalized learning has been beneficial (Green, 2017; Farmer, 2016; Metcalf, 2017; New, 2017; Piley, 2016; Price, 2018; Taylor, 2016). The following sections highlight several themes that have been heavily explored and identified during a review of literature.

**Relationships**

New (2017), in a qualitative study on the impact of personalized learning, discovered that leveraging students' individuality and meaningful relationships can help teachers develop curriculum that serves all students as unique learners and helps them experience success in and beyond the classroom. Personalized learning encourages the engagement of students and allows for differentiated teaching and learning to occur. Teachers use these meaningful relationships to develop instructional practices that create successful learning opportunities for their students. As concluded by Farmer (2016), in a

mixed-method study, these relationships are the driving force behind personalized learning. These relationships allow educators to focus on each student's unique needs, within the broader educational context.

Building relationships creates a more learner-friendly environment for both students and teachers (Denton, 2017). Educators must take the time to understand how students learn to create a curriculum that will help students grasp learning materials and demonstrate success in the classroom, which will transfer into life skills.

Researchers discovered that when teachers implement personalized learning with the correct support and resources, they can adequately support students on an individualized level (Green, 2017; Taylor, 2016). These supports and resources help build relationships which impact students' achievement because, as a result, students become a part of the learning process and help co-construct their learning plans (Green, 2017; Metcalf, 2017; New, 2017; Taylor, 2016).

Runner (2018) conducted a qualitative case study designed to explore how a group of teachers approached personalized learning to create individualized opportunities which promoted student accomplishment in reading. Runner (2018) found that teachers must be intentional when building strong relationships with students, intentionally query students using information gleaned from their personal lives and academic skill set, and they intentionally foster student independence in their learning.

In addition, Green (2017) discovered that personalized learning had a positive impact on the relationships between students and teachers. The author used a qualitative,

case study design with a social constructivist approach to study high school students'

perspectives of blended learning. The students reported that teachers had more time to

build relationships when they decided to meet with students individually. Using

personalized learning, teachers created mutual responsibility and a deeper understanding

of their students.

To fully understand students and to implement personalized learning, deeper

connections are necessary for real impact, ranging from student engagement to student

achievement that is transferrable inside and outside of the classroom.

**Voice and Choice**

As schools transform from a teacher-centered to a learner-centered environment,

voice and choice in the learning process has also changed. Voice and choice or student

agency is one of the critical tenets of personalized learning, and it has impacted many

instructional practices (Metcalf, 2017; Taylor, 2016). Student input incorporated into the

design of how they learn leads to a more student-centered experience. This input shapes

the what, who, and where students learn based upon their needs and interests. This tenet

of personalized learning is seen in many methods of implementation.

This newfound student agency considers students' decisions regarding what they

want to study, how they want to work, expected outcomes, and where they complete their

work. Taylor (2016), in a qualitative case study on teachers' experiences when

transitioning to a personalized approach to instruction, concluded that voice and choice

improved instructional practices because students had more opportunity to discuss their

preferred ways of learning. Students are now owning their learning rather than having learning done to them by the teacher. The teacher's responsibility shifts from leading all the learning to becoming a facilitator of the learning experience in conjunction with the student.

Metcalf (2017) used a qualitative approach to study education leaders and their perspectives of personalized learning. The researcher discovered that voice and choice provided motivation for students to achieve high marks on mandated benchmarks and standards. This study revealed that by using voice and choice, additional pathways were opened as part of students' learning plans, which offered students more choice. Personalized learning gives students voice and choice in every aspect of their learning process including goal setting, content, strategies, mode of presentation, assessments, projects, and much more (Price, 2018).

**Time**

The review of literature also showed how the concept of time had a direct impact on teachers' instructional practices. Green (2017), in one of the few studies that observed student perspectives, found that students reported teachers not having enough time to meet their needs due to either overcrowded classrooms or other obligations. In addition, researchers (e.g., Price, 2018; Taylor, 2016) concluded that teachers required more time than was provided to adequately implement personalized learning to impact student success. This created a major barrier in the classroom. If teachers are not provided the time for professional learning, planning, or implementation, they will not be able to

properly support this instructional model. The successful implementation of personalized learning requires time and resources that many schools and educational institutions do not have or do not provide for their teachers (Savio-Ramos, 2015).

Given the research, it is evident that, although personalized learning is a new venture for many educators, it has made some positive impacts on the instructional practices of teachers. The review of literature has identified empirical findings on the benefits of personalized learning in areas such as relationships (teachers and students), and student agency as being benefits of personalize learning. However, one area that is still unknown is the area of attendance, which this study will address.

### Student Engagement

While personalized learning is making great strides in some areas according to the literature, little is known about the direct impact this phenomenon has on students' engagement. Student engagement, as defined by Fredricks et al. (2004), is the capacity for and inclination of students to take ownership of past, present, and future educational experiences in their learning. For years, engagement has been regarded as solely time spent on a task (Schlechty, 2011); however, many educators can attest that students who appear to be engaged may not be doing any critical thinking or participating (Parsons et al., 2014). For students to be successful in school, they must do more than just attend school and sit quietly. Educators must find and create ways for them to engage with classroom context to advance their learning (Fredricks et al., 2004). As Fredericks et al. (2004) described, engagement has three interconnected and distinct dimensions:

cognitive, behavioral, and emotional. Each of these dimensions requires individual attention if educators will engage students in meaningful ways.

      *Emotional engagement* is comprised of reactions, both positive and negative responses to students' educational experience. These experiences include those between students and their classmates, teachers, and context of school, these experiences are considered the level of willingness to work (Frederick et al., 2004). As Parsi (2015) stated, emotional engagement is a key driver behind student motivation and can, therefore, dictate the quality of a student's work. *Behavioral engagement* includes behaviors that are aligned with the concept of participation and compliance and is considered an influence on student success and a direct impact on the lack of student engagement (Frederick et al., 2004).In other words, students doing what they are supposed to do and avoiding disruptive behaviors is an example of behaviors that are aligned to participation and compliance. *Cognitive engagement* derives from the area of investment and involves a willingness to invest the effort needed to understand complex concepts (Frederick et al., 2004). Quality learning is not solely based on breadth but also depth of learning. Educators must create learning opportunities for students to not only go deeper but have an intrinsic motivation to do so. Frederick et al. (2004) asserted that the synthesis of all three domains regarding engagement is important, as it illustrates a more valuable picture of students. As educators consider these three interconnected and distinct dimensions of engagement, student engagement then becomes a byproduct of student agency.

**Student Agency as Engagement**

As this study seeks to research attendance as a means of student engagement, a clear understanding of student engagement is needed. Student agency, which has a direct impact on student engagement, refers to learning through activities that are meaningful and relevant to learners, driven by their interests, and often self-initiated with appropriate guidance from teachers (Arnold & Clark, 2014). Student agency, for most personalized learning, is observed through the implementation of student voice and choice. Research has shown that learner voice contributes to learner agency (Williams, 2017). Easley (2017), who researched personalized learning environments, stated that by empowering students to take control of their learning, student choice makes students active participants in the educational process, thereby increasing levels of engagement. If student engagement is increased, students who attend classes and school should show a decrease in the number of days they are absent from school. Student choice brings forth higher engagement, because students are more satisfied with their learning (Martin & Pickett, 2013).

<div align="center">**Attendance**</div>

Under the ESSA, schools across the country are now held accountable for their students' attendance on a scale the United States has never seen before (Balu & Ehrlich, 2018). ESSA forced educators to scale back regarding the emphasis on standardized test scores for accountability and included a nonacademic measurement centered around school quality or school success (Jordan & Miller, 2017). As state leaders determine

which nonacademic measures to consider, most districts adopted chronic absenteeism as their new measurement (Bauer et al., 2018). Holding leaders accountable for these absences can encourage educators to address causes of absences and educational programs that do not meet the needs of individual students. This is important because, ultimately, student engagement is often negatively affected by poor student attendance (Gee, 2018).

Each year, it is estimated that 5 to 7.5 million students in the United States miss nearly a month of school, as discovered by Ginsburgh et al. (2014), who conducted a state to state analysis of student attendance. This loss of instructional time for students increases dropout rates and widens the achievement gap for students. As schools employ new models, such as personalized learning, a gap in the research is whether this new model has a direct impact on the classroom attendance of today's students. Schools seeking to reduce disparities in absenteeism will need to intentionally establish explicit targets to reduce these gaps and develop individualized strategies to remove barriers to attendance to get children back into the classroom (Gee, 2018).

The issue of attendance does not specifically impact one gender, race, or socio-economic group. Ginsburgh et al. (2014) noted that, while students from low-income families are more likely to be chronically absent, the ill effects of missing too much school holds true for all socioeconomic groups, racial and ethnic groups, and ages in every state and city examined. As such, this is a crucial time to understand what schools can do to move the needle to engage all students. Poor attendance is a national challenge

that impacts academic performance and contributes to student achievement gaps (Ginsburgh et al., 2014).

Multiple studies have been conducted that show that before fourth-grade, 1 in 10 students in the United States is considered chronically absent, which entails missing more than 10% of school days in an academic year (Chang & Romero, 2008; Therriault et al., 2010). It is critical that educational leaders understand the importance of attendance at an early age. Educators must provide and create educational programs that will encourage students to attend school on a regular basis. Attendance in kindergarten and elementary school robustly predicts academic outcomes for students (Robinson et al., 2018). Despite the well-documented association between attendance and academic outcomes amongst elementary school age students, there is little experimental research regarding how to reduce student absenteeism. Therefore, it is up to school personnel to find creative ways to incentivize their presence.

Balu and Ehrlich (2018), in an article that discussed considerations when creating attendance incentives, indicated that student attendance is closely tied to a range of educational outcomes, outcomes which causes millions of students to be chronically absent each year. Research has shown that when schools create programming that engages students, attendance rates increase (Chang & Romero, 2008). Schools are utilizing new incentives and programs that reengage their students, and personalized learning could create this engaging learning experience for students. This study will

examine whether students are engaged when personalized learning is implemented in comparison to their counterparts that are not receiving personalized learning.

## Summary

The literature review revealed that both teachers and administrators have confidence in personalized learning as a way to develop skills for students (Senge et al., 2000). However, many unanswered questions remain regarding educators utilizing personalized learning (Cavanagh 2014; Zmulda et al., 2015). Nonetheless, in addition to the remaining inquiries, there is a gap in the research regarding how this concept has made an impact on student attendance. Most research regarding personalized learning is conducted using qualitative research methods, which leaves a gap in studies using quantitative methods.

The information compiled in the literature review builds a case for the continual exploration of personalized learning, particularly regarding student engagement through agency. Students who exhibit agency in their learning are more motivated, experience greater satisfaction in their learning, and consequently, are more likely to achieve academic success (Williams, 2017). Personalized learning provides students with agency as they become centered in their learning and generally determine the how, when, and what they learn.

**CHAPTER 3: METHODOLOGY**

**Introduction**

In today's classrooms curricular standards, instruction, and assessments lead many conversations about instructional design. Given the need for a more holistic instructional model that will address these concerns, personalized learning has been implemented in K-12 classrooms because all three areas are emphasized in this pedagogical practice for both students and educators. Personalized learning as a learning approach targets the student experience and allows students to play a key decision-making role in their own journeys to increase student engagement and agency (Bray & McClaskey, 2014). Students who are engaged in the decision-making processes of their own educational experiences—those who have agency—achieve and perform better than their peers who are not engaged (Fredricks, 2014). Thus, the school of study understands personalized learning as increasing student agency as the key foundation for improving engagement and therefore academic success. In order to assess this relationship, the research study sought to deepen the understanding of the relationship between personalized learning and students' attendance. This chapter outlines the research design, instrumentation, participants, data analysis methods, and study limitations. The following research questions guided this study:

- **R1:** To what extent is there a difference in average attendance between students who received personalized learning and students who did not receive personalized learning?

- o **H$_{01}$:** There is no significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning.

- o **H$_1$:** There is a significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning.

- **R2:** To what extent is there a difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning?

  - o **H$_{02}$:** There is no significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning.

  - o **H$_2$:** There is a significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning.

## Research Method

Research designs are often chosen based on the nature of the study. Research studies are conducted using of the following three methods: quantitative, qualitative, and mixed methods (Cresswell, 2018). A quantitative research method was selected for this study, as it is defined as educational research in which the researcher determines what to study; determines specific yet narrow questions; collects data that are quantifiable from

research participants; analyzes these numbers using statistical measures; and conducts an unbiased and objective inquiry (Creswell, 2018). Quantitative research will allow the researcher to focus on testing theories and hypothesis formulated. Both qualitative and mixed-methods were reviewed; however, they were not selected for this study. For this study historical data was used (Maxwell, 2013). A mixed method was not selected as it combines both quantitative and qualitive methods, and this study employed both descriptive and inferential statistics to analyze the collected data. A qualitative method is implemented in the natural setting of the participants that are being researched and the events are being lived out.  For the current study, data was collected directly from the school district's Research & Program Evaluation (RPE) office.

## Research Design

The quantitative research design used in this approach encompasses several types of methods. This study adopted a causal-comparative design, using an independent variable that involves two different comparison groups. I choose not to use other quantitative research designs such as experimental or correlational because causal-comparative focuses on exploring the reasons behind existing differences between two or more groups (Martin & Bridgmon, 2012). The research design can also be described as ex-post facto. The ex-post facto research design involves group comparisons between qualities that already exist, and then are compared based on a dependent variable. An ex-post facto design is also described as quasi-experimental because the groups are not randomly assigned (Jackson, 2011).

The research of Wallen and Franekel (2001) was instrumental in determining the best research approach for this study. According to Wallen and Franekel (2001), when a researcher conducts a causal-comparative study, two or more groups that already differ are compared and analyzed on one or more variables. Using this approach, the research identifies a cause-and-effect relationship. Also, participant groups are studied based on or by the absence of the independent variable as the cause and the dependent variable, as the effect, for comparison (Gall et al., 2007).

In this study, two groups of fourth-grade students were compared based on the presence or absence of personalized learning used in an instructional manner. Therefore, the independent variable for this study is personalized learning. The independent variable, personalized learning, was measured at two levels: 1) those who received personalized learning, 2) those who did not receive personalize learning. The dependent variables for this study are student attendance and the reasons for absences.

## Context of Study

The school district that was used for this study is located in the Central Southwest region of Wisconsin. The city is ever-changing and becoming a growing technology economy. According to the district's website, the district covers approximately 74 square miles serving over 27,000 students across 52 schools. This district is the second largest school district in the state of Wisconsin.

During the 2014-2015 school year, the district started the planning phase of becoming a 1:1 district, providing each student with a Chromebook for school and home

usage. With this new technology plan schools were assigned yearly cohorts to allow the district to implement technology across 52 schools over the course of five academic school years. This study included two of the 32 elementary schools within this district.

School A, which was one of the first schools to implement technology, has been using personalized learning as an instructional model since the 2015-2016 school year. The decision to use personalized learning as an instructional model was made by school-based leadership with assistance from the district office. The school wanted to leverage the use of technology as a newly identified 1:1 school. The school leverages certain aspects of personalized learning: voice and choice, anywhere, anytime learning, and frequent feedback from instructors and peers. To date this is one of two elementary schools that has implemented virtual learning at the school level.

School B in comparison to School A is also a 1:1 school and implemented 1:1 technology during the same school year as School A. For an instructional model, School B uses gradual release as an instructional model for their students and not personalized learning. Gradual release has three essential components: 1) What the teacher does (I do it); 2) what the teacher and student do together (we do it); and 3) independent practice (Student does it) (Saligumba & Tan, 2018). This instructional model is supported in all schools across the district.

This study used data from the 2017-2018 and the 2018-2019 school years. This is one year after School A started personalized learning and two years after the school implemented 1:1 technology.

**Instruments**

To compare the two schools, this study used secondary data to examine the independent variable, personalized learning and the dependent variables of attendance and the reasons for absences. Smith (2008) described secondary data as data that have already been collected by someone else for other purposes. Secondary data analysis can benefit researchers by providing large sample sizes and a variety of data regarding multiple topics, which saves the researcher time (Renbarger et al., 2019). Publicly accessible data also facilitate researcher transparency, provide thorough documentation, have a clear justification of analytic processes, and verify results prior to publication, which are all good practices that uphold the scientific process (Donnellan et al., 2011). The participating school district has already collected data for their own purposes. Thus, for this study, secondary data detailing students' attendance was requested for the 2017-2018 and 2018-2019 academic school years. This data included the number of absences by reasons (i.e., unexcused, excused, sports excused, or tardy) and absent minutes (i.e., the number of minutes the student has missed of class for the academic year).

**Participants**

In a research study, the target population must be considered to determine the appropriate sample size for any given study (Creswell, 2008). This study compared all fourth-grade students in a Wisconsin public school district who participated in personalized learning at one elementary school to the fourth-grade population of another elementary school where students did not receive personalized learning.

An a priori power analysis was conducted with G*Power 3.1.2 (Faul et al., 2007). A power analysis is necessary in order to determine the appropriate sample size to detect a significant difference if one does exist (Brace et al., 2013). In other words, if no significant differences are observed, it cannot be determined whether the lack of significant difference truly exists or if it is due to a small sample size unless a power analysis is conducted. G*Power uses an analysis-by-design approach to computing sample sizes. This means that the input parameters for the analysis depend on the statistical tests.

The required input parameters for an Independent Samples *T test* include tails, effect size, alpha level, power level, and allocation ratio. The hypotheses are two-tailed hypothesis. They are non-directional. Therefore, the a priori power analysis is for a two-tailed test. Effect size is a standardized way of quantifying a difference. Effect sizes are categorized as small, medium, or large (Cohen, 1977). For this study, a medium effect size ($d = 0.5$) was selected. The alpha level used was $p < .05$. The minimum acceptable power level is .80, which was selected for this study (Brace, Kemp, & Snelgar, 2013). The last parameter is the allocation ratio, which refers to the anticipated group size proportions. The default value is "1," which means that equal group sizes are anticipated. Based on these criteria, a sample size of 128 was required. The same process was repeated for the chi-square test, which had slightly different parameters than the *t test*. However, the required sample size for the chi-square test is 122.

This study included the census of 4<sup>th</sup> grade students of two local elementary schools of an urban school district in the state of Wisconsin; one school has implemented personalized learning as an instructional model, while the other school has not. Many researchers involved in quantitative studies tend to select a sample based on convenience or availability (Etikan et al., 2016). For this study a judgmental sampling was employed. This study the schools were selected based on their instructional model, use of technology, and number of students in fourth-grade for the 2017-2018 and 2018-2019 academic school years.

**Data Analysis Methods**

This quantitative study used both descriptive and inferential statistics for data analysis. Hinkle et al. (2003) described inferential statistics as a collection method for making inferences about the characteristics of the population from the knowledge of the corresponding characteristics of the sample. Contrarily, descriptive statistics are used to classify and summarize, or describe, numerical data (Hinkle, 2003). To test the hypothesis of each research question, the following statistical tests were used, in conjunction with the *t test* for Independent Samples for data analysis.

A preliminary analysis of the both samples was conducted to see if the data set is normally distributed. To determine if the data set was normally distributed, I applied the Kolmogorov-Smirnov (K-S) test. The K-S test was used because it is designed to test normality by comparing data to a normal distribution and this test remains the mostly widely applied test for investigating if the sample is normally distributed (Olea &

Pawlowsky-glahn, 2009). The Levene F-test was applied to determine if equality of variances exists before running the suggested *t test*. The study used data for the 2017-2018 and 2018-2019 school year.  In addition, data from the 2016-2017 school year was included as baseline data.

Research Question 1 was tested using an Independent Samples *T test*. The alpha level of *p*=.05 was used to test the hypotheses. The independent variable will be personalized learning status with two levels, categorized as received personalized learning or did not receive personalized learning. Included in descriptive statistics are measures of central tendency: mean, median, and mode. Of these three measures, the mean is considered the most stable, and therefore the most recommended for use. In addition to measures of centrality as descriptive statistics, measures of variability such as range, variance, and standard deviation are considered.  Like mean, the standard of deviation is most used over variance and range (Gall et al., 2007). The standard deviation is the measure of extent to which scores in a distribution deviate from their mean (Gall et al., 2007).

Research Question 2 will be tested using the Chi-Square Test of Independence. Chi-Square Test of Independence lists six assumptions that have been reviewed as part of this study (McHugh, 2013). The data, as described in Table 1 is counts of absences rather than percentages, assumption 1. For this test, the variables (unexcused, excused, sports

excused, or tardy) are mutually exclusive and the count only fits into one of the

categories, assumption 2 and 3. The independent variable will be personalized learning

status with two levels, categorized as received personalized learning or did not receive

personalized learning, assumption 4. Assumption 5 states that there are 2 variables, and

both are measured as nominal categories. The data used reasons for absences as a

nominal category. The final assumption, as described by McHugh (2013), states that the

value of the cell expected should be 5 or more in at least 80% of the cells. In order to

determine if this assumption is met, the researcher must determine if the sample size

equals at least the number of cells multiplied by 5 (McHugh, 2013).  If this assumption is

not met, the researcher will use the likelihood ratio, particularly the significant value and

compare to the level of significance. If that number is larger, than the null hypothesis can

be retained.  The Chi-Square Test of Independence will be performed to examine the

reason for absences between those who received personalized learning and those who did

not as an instructional model.  The alpha level of $p=.05$ will be used for this test, and a

two-by-four design will be required. See Table 1 below.

**Table 1**

*Explanation of Variables for Use in 2 X 4 Chi-Square*

| Type of Learning (rows) / Reason for Absence (columns) | Unexcused | Excused | Sports Excused | Tardy |
|---|---|---|---|---|
| Receive personalized learning | Actual counts of absence cases | Actual counts of absence cases | Actual counts of absence cases | Actual counts of absence cases |
| Do not receive personalized learning | Actual counts of absence cases | Actual counts of absence cases | Actual counts of absence cases | Actual counts of absence cases |

The research hypotheses, statistical tests, and the independent and dependent variables are presented in Table 2 below.

**Table 2**

*Hypotheses, Required Statistical Tests, and Scales of Measurement for Variables of Interest*

| Hypothesis | Statistical Test | Independent Variable/Scale of Measurement | Dependent Variable/Scale of Measurement |
|---|---|---|---|
| $H_{01}$: There is no significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning. | Independent Samples *T test* | Personalized Learning Status/ Dichotomous Nominal | Total Minutes Missed Minutes/Ratio |
| $H_{02}$: There is no significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning. | Chi-Square Test of Independence | Personalized Learning Status/ Dichotomous Nominal | Reasons for absences/Nominal |

**Limitations**

The limitations of this study included sample size (n=469) and extraneous variables. The sample size is considered small in quantitative research and potentially not representative of the broader population. To address this limitation, I considered ways to increase the population by reviewing the instructional practices within other elementary schools for consideration of this study.  Another limitation of this study is the potential for outside variables to impact both groups students' attendance for the population of students receiving personalized learning. These variables might include gender, race, both conscious and unconscious biases of teachers, socioeconomic background, and students' home lives (Jennings & Greenburgh, 2009; Rouse & Barrow, 2006).

**Summary**

This chapter outlined the research methodology to determine if personalized learning has an impact on student attendance. This used a quantitative, causal-comparative approach to address the study's purpose. Secondary data was used to answer two research questions and test hypotheses. Both descriptive and inferential statistics was used in the data analysis process. Independent Samples *T test* and Chi-Square Test of Independence will be used to determine if a significant difference exists between the variables, and all hypotheses will be tested at the alpha level of *p*=05.

**CHAPTER 4: FINDINGS**

The primary purpose of this quantitative study was to determine if significant differences existed in the classroom attendance rates between students who received personalized learning and students who did not receive personalized learning. The study sample encompassed fourth-grade students in a Wisconsin public school district. A secondary purpose of this study was to determine if there was a significant difference in *the reasons* for absences between students who received personalized learning and students who did not receive personalized learning. As detailed in Chapter 2, few studies have quantitatively evaluated the impact of personalized learning on students' classroom attendance patterns. The current study was conducted to address this gap in the literature, given personalized learning is recognized as a model that equips students with skills such as communication, creativity, collaboration, and critical thinking that are necessary in the 21st century (Stanley, 2016). This study also aimed to support schools with accountability obligations. Under Every Student Succeeds Act (ESSA), schools are held accountable for chronically absent students and for determining ways to help them overcome their accompanying barriers.

The remainder of this chapter is organized into the following sections: (a) summary of the study design, (b) population and demographics, (c) results in corresponding to research questions findings to research questions, and (d) a summary of the results.

## Study Design

The research design is comparative and ex post facto. An ex post facto research design involves group comparisons with preexisting qualities, and they are compared based on a specified dependent variable. An ex post facto design is also described as quasi-experimental, because the groups are not randomly assigned (Jackson, 2011). In this study, two groups of fourth-grade students were compared using the dependent variable of school attendance. Data were analyzed using SPSS 23 for Windows. The SPSS software was created for not only statistical analysis of social science data but is useful for data management as well. This platform was used due to the straightforwardness of English-like commands and the easily accessible resources.

## Population and Demographics

The data were provided in two Excel spreadsheets on 469 students. One dataset contained data on students with unduplicated cases with their demographics and number of minutes missed during the school year. The other data set contained several cases that were duplicated due to the reasons for case entry. For instance, one student may have had 3 case entries commensurate with the periods and reasons of absences. The first data set was comprised of students from the 2016-2017 school year (36.0%, $n = 169$). This data were used for the baseline analysis. The second dataset included data from the 2017-2018 school year (31.3%, $n = 147$), and the 2018-2019 school year (32.6%, $n = 153$). Students missed 0 to 35,775.00 minutes of school ($M = 4,280$, $SD = 3,856.81$) with a median of 3,375.00 minutes. Relative to gender, male (51.4%, $n = 241$) and female students (48.6%,

$n = 228$) were approximately equally distributed. None of the students received

personalized learning in the 2016-2017 school year. Data from the 2016-2017 school year

were included as baseline data. Of the remaining 300 students, the number of students

who received personalized learning (51.0%, $n = 153$) and did not receive personalized

learning (49.0%, $n = 147$) during the 2017-2018 and 2018-2019 school years were also

approximately equally distributed. Personalized learning was implemented in School A.

School B had no personalized learning. Out of the sample of 300 students, 24.7% ($n =$

74) were females who received personalized learning, 26.3% ($n = 79$) were males who

received personalized learning, 21.0% ($n = 63$) were females who did not receive

personalized learning, and 28.0% ($n = 84$) were males who did not receive personalized

training. Personalized learning by gender is presented in Table 3.

**Table 3**

*Personalized Learning by Gender*

| | | | Gender | | |
| | | | Female | Male | Total |
| --- | --- | --- | --- | --- | --- |
| School | A (Personalized Learning) | Count | 74 | 79 | 153 |
| | | % of Total | 24.7% | 26.3% | 51.0% |
| | B (No Personalized Learning) | Count | 63 | 84 | 147 |
| | | % of Total | 21.0% | 28.0% | 49.0% |
| Total | | Count | 137 | 163 | 300 |
| | | % of Total | 45.7% | 54.3% | 100.0% |

Out of the sample of 300 students from the 2017-2018 and 2018-2019 school

years, 24.3% ($n = 73$) were White and received personalized learning, whereas 19.0% ($n$

$= 57$) were White and did not receive personalized learning. Nine percent ($n = 27$) were

Black or African American and received personalized learning, and 3.3% (*n* = 10) were

Black or African American and did not receive personalized learning. Hispanics

comprised 9.7% (*n* = 29) of the sample who received personalized learning compared to

5.7% (*n* = 17) of their counterparts who did not receive personalized learning. However,

the largest minority group in the sample were Asian, which comprised 17.7% (*n* = 53) of

the total sample of 300 students. Three percent (*n* = 9) of the sample received

personalized learning and were of Asian extraction, whereas 14.7% (*n* = 44) were Asians

and did not receive personalized learning. Five percent of participants (*n* = 15) were

multiracial and received personalized learning compared to 6.0% (n = 18) of their

counterparts who did not receive personalized learning. Personalized learning by race is

presented in Table 4.

**Table 4**

*Race by Personalized Learning*

| | | | School | | |
| --- | --- | --- | --- | --- | --- |
| | | | A (Personalized Learning) | B (No Personalized Learning) | Total |
| Race | American Indian/Alaska Native | Count | 0 | 1 | 1 |
| | | % of Total | 0.0% | 0.3% | 0.3% |
| | Asian | Count | 9 | 44 | 53 |
| | | % of Total | 3.0% | 14.7% | 17.7% |
| | Black or African American | Count | 27 | 10 | 37 |
| | | % of Total | 9.0% | 3.3% | 12.3% |
| | Hispanic/Latino | Count | 29 | 17 | 46 |
| | | % of Total | 9.7% | 5.7% | 15.3% |
| | Multiracial | Count | 15 | 18 | 33 |
| | | % of Total | 5.0% | 6.0% | 11.0% |
| | White | Count | 73 | 57 | 130 |
| | | % of Total | 24.3% | 19.0% | 43.3% |
| Total | | Count | 153 | 147 | 300 |
| | | % of Total | 51.0% | 49.0% | 100.0% |

The second Excel spreadsheet had multiple ($n = 2{,}305$) case entries. Several cases were duplicated due to the reasons for case entry. There were 802 case entries for the 2016-2017 school year, 723 cases for the 2017-2018 school year, and 780 for the 2018-2019 school year. Excuse descriptions were varied. The most frequent excuses included medical appointments (16.2%, $n = 244$), illness (15.5%, $n = 233$), and preapproved absences (13.6%, $n = 204$). Less frequent excuses were religious holidays (0.8%, $n = 12$), inclement weather (1.1%, $n = 17$) and bereavement (1.3%, $n = 20$), to name a few.

Excuse descriptions are presented in Table 5. The District's Lead Attendance Social

Worker provided a full list of attendance label descriptions (see Appendix A).

**Table 5**

*Excuse Descriptions by Personalized Learning*

| | | | School | | |
| | | | School A (Personalized Learning) | School B (No Personalized Learning) | Total |
|---|---|---|---|---|---|
| Excuse Description | Administrative Excused | Count | 1 | 1 | 2 |
| | | % of Total | 0.1% | 0.1% | 0.1% |
| | Bereavement | Count | 12 | 8 | 20 |
| | | % of Total | 0.8% | 0.5% | 1.3% |
| | Family Emergency | Count | 29 | 17 | 46 |
| | | % of Total | 1.9% | 1.1% | 3.1% |
| | Hospitalized | Count | 1 | 2 | 3 |
| | | % of Total | 0.1% | 0.1% | 0.2% |
| | Illness | Count | 126 | 107 | 233 |
| | | % of Total | 8.4% | 7.1% | 15.5% |
| | In-School Suspension | Count | 1 | 0 | 1 |
| | | % of Total | 0.1% | 0.0% | 0.1% |
| | Inclement Weather | Count | 11 | 6 | 17 |
| | | % of Total | 0.7% | 0.4% | 1.1% |
| | Medical Appointment | Count | 127 | 117 | 244 |
| | | % of Total | 8.4% | 7.8% | 16.2% |
| | Not Applicable | Count | 214 | 235 | 449 |
| | | % of Total | 14.2% | 15.6% | 29.9% |
| | Nurse's office | Count | 33 | 0 | 33 |
| | | % of Total | 2.2% | 0.0% | 2.2% |
| | Out of School Suspension | Count | 1 | 0 | 1 |
| | | % of Total | 0.1% | 0.0% | 0.1% |
| | Pre-Approved Absence | Count | 106 | 98 | 204 |
| | | % of Total | 7.1% | 6.5% | 13.6% |

|  |  | School | | |
|  |  | School A (Personalized Learning) | School B (No Personalized Learning) | Total |
| --- | --- | --- | --- | --- |
| Religious Holiday | Count | 2 | 10 | 12 |
|  | % of Total | 0.1% | 0.7% | 0.8% |
| Tardy Excused | Count | 6 | 7 | 13 |
|  | % of Total | 0.4% | 0.5% | 0.9% |
| Tardy Unexcused | Count | 0 | 89 | 89 |
|  | % of Total | 0.0% | 5.9% | 5.9% |
| Transportation | Count | 4 | 6 | 10 |
|  | % of Total | 0.3% | 0.4% | 0.7% |
| Unexcused Absence | Count | 67 | 58 | 125 |
|  | % of Total | 4.5% | 3.9% | 8.3% |
| Unexcused Absence - LSW | Count | 0 | 1 | 1 |
|  | % of Total | 0.0% | 0.1% | 0.1% |
| Total | Count | 741 | 762 | 1503 |
|  | % of Total | 49.3% | 50.7% | 100.0% |

*Note.* LSW=Licensed Social Worked

## Results and Findings to Research Questions

The following two research questions and related hypotheses were formulated for testing:

- **R1:** To what extent is there a difference in average attendance between students who received personalized learning and students who did not receive personalized learning?

  - **$H_{01}$:** There is no significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning.

- o **H$_1$:** There is a significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning.

- **R2:** To what extent is there a difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning?

  - o **H$_{02}$:** There is no significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning.

  - o **H$_2$:** There is a significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning.

The first research question was answered with an independent samples *t test*. The result was nonsignificant. The second research question was answered with a chi-square test of independence. The result was statistically significant. Prior to the analyses, similar analyses were done on data from the 2016-2017 school year. This year was used because personalized learning was absent from both school schools and helped to establish baseline comparisons. The following sections provide more detailed analyses of the research questions.

## Research Question 1/Hypothesis 1

**Baseline Data**

*To what extent is there a difference in average attendance between students who received personalized learning and students who did not receive personalized learning?* Research Question 1 was answered with an independent samples *t test*. The independent variable was personalized learning administration. The dependent variable was attendance (number of minutes missed). The sample size for the baseline data consisted of 169 students for the 2016-2017 school year. The baseline data were examined for normality with skewness and kurtosis statistics and also with histograms. Skewness and kurtosis statistics below ± 1.00 were considered to be within normal limits. Regarding number of minutes missed for students in School A, the skewness (5.26, *SE* = .26) and kurtosis (37.42, *SE* = .52) coefficients were greater than 1. The histogram for number of minutes missed by students in School A is presented in Figure 1.

**Figure 1**

*Histogram of Total Minutes Missed by Students in School A: Baseline Data*
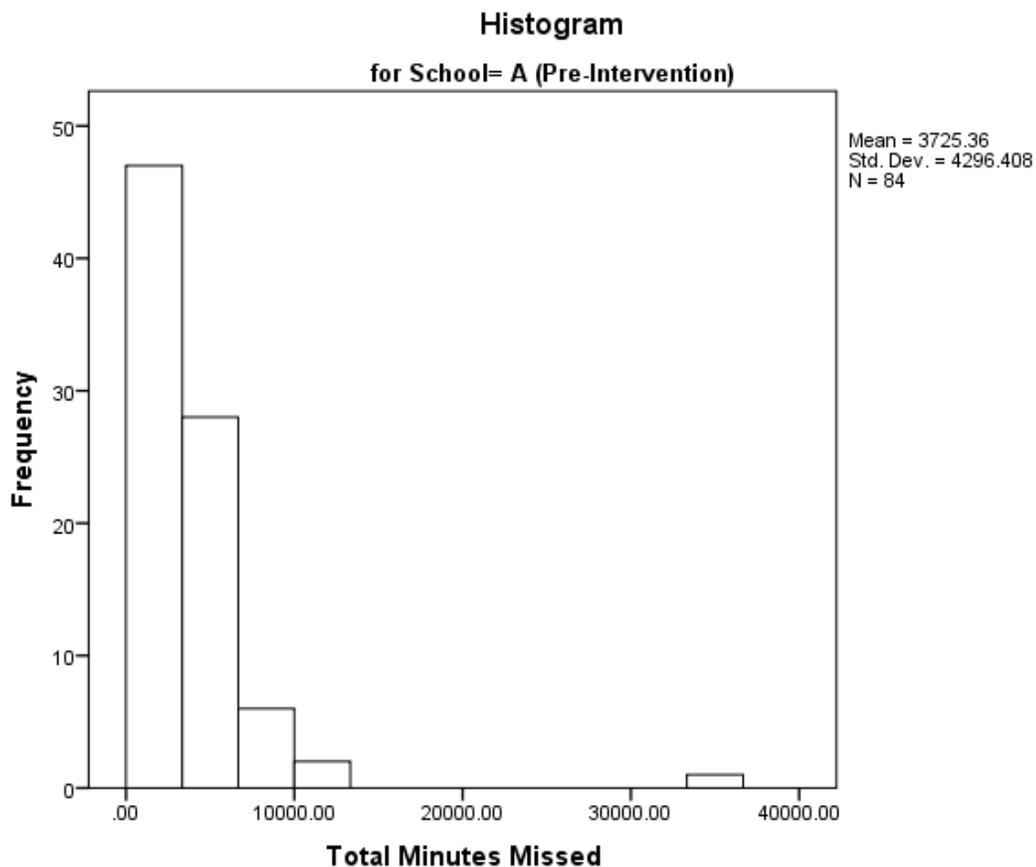


For number of minutes missed for students in School B, the skewness (1.25, *SE* = .26) and kurtosis (1.26, *SE* = .52) coefficients were greater than 1. The histogram for number of minutes missed by students in School B is presented in Figure 2.

**Figure 2**

*Histogram of Total Minutes Missed by Students in School B: Baseline Data*
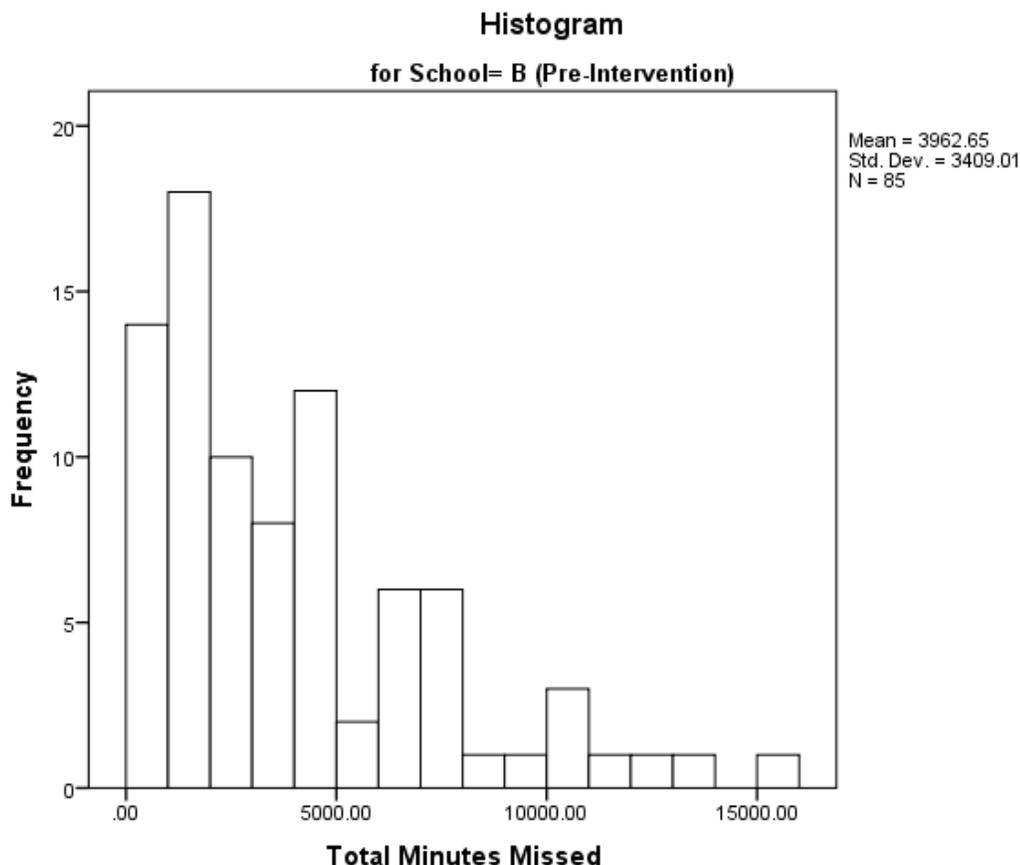


The data were also examined for statistical outliers with stem and leaf plots and also with box and whisker plots. Statistical outliers are shown as points above or below the whiskers in a box and whisker plot. However, the values are determined mathematically when they fall above or below 1.5 times the interquartile range (IQR). The IQR is the difference between the third and the first quartile. The distribution of values for number of minutes missed for students in School A had 4 statistical outliers ≥

9,315. The distribution of values for number of minutes missed for students in School B

had 3 statistical outliers $\geq$ 12,420. The box and whisker plot of number of minutes missed

by school is presented in Figure 3.

**Figure 3**

*Box and Whisker Plot of Minutes Missed by School: Baseline Data*
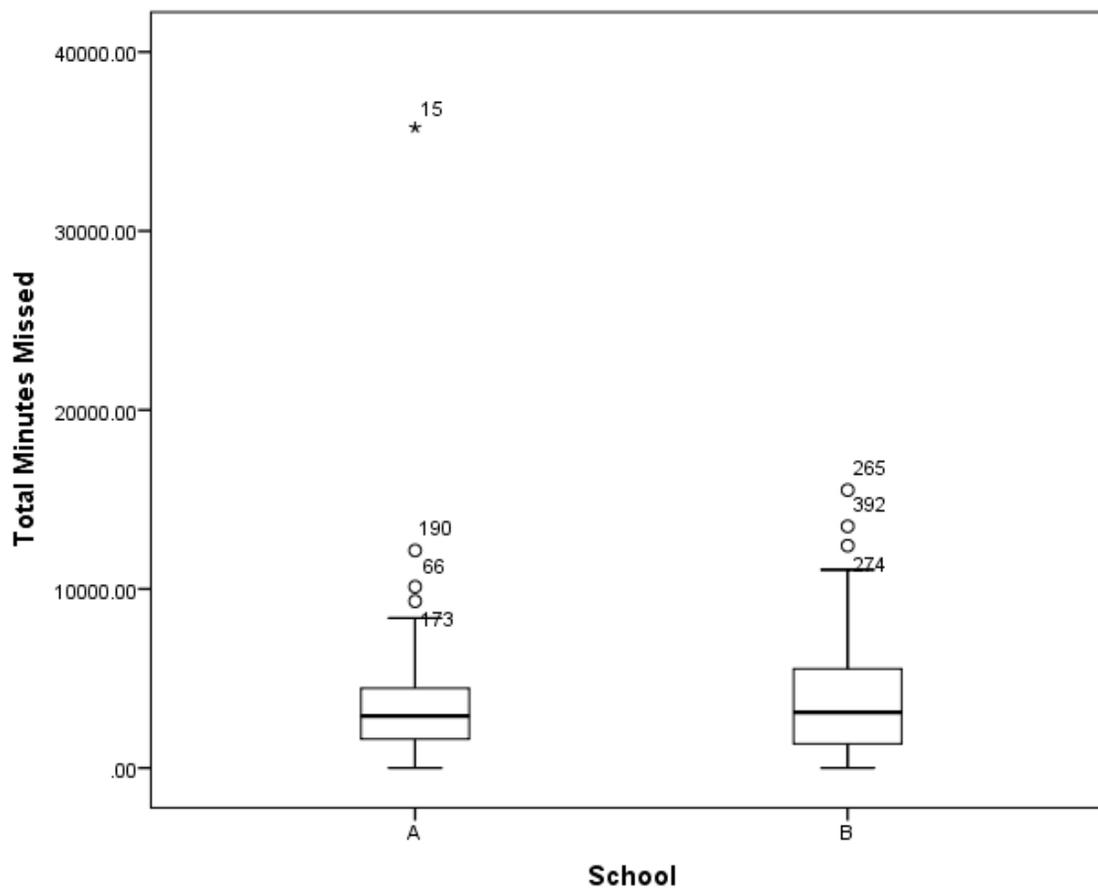


Due to the nonnormality of the data and the presence of statistical outliers, a

nonparametric statistical test, the Mann-Whitney U Test was conducted. However, the

outcome of the result was similar to that of the *t test*. Therefore, the *t test* result was reported. Moreover, the *t test* is very robust to departures from normality for large sample sizes (> 30) (Osborne, 2004). *T test* group means are presented in Table 6.

**Table 6**

*T test Group Means for Baseline Data*

|  | School | *n* | *M* | *SD* | *SEM* |
|---|---|---|---|---|---|
| Total Minutes | A | 84 | 3,725.36 | 4,296.41 | 468.78 |
| Missed | B | 85 | 3,962.65 | 3,409.01 | 369.76 |

Levene's Test for Equality of Variances indicated that the assumption had not been violated, *p* = .462. There was no significant difference in the number of minutes missed between students in School A (*M* = 3725, *SD* = 4296.41) and students in School B (*M* = 3962.65, *SD* = 3409.01), *t*(167) = -0.40, *p* = .691, two-tailed. The mean difference was 237.29 minutes. *T test* results are presented in Table 7.

**Table 7**

*T test Results for Baseline Data*

|  | *t* | *d* | *p* | Mean Difference | Std. Error Difference |
|---|---|---|---|---|---|
| Total Minutes | -.398 | 167 | .691 | -237.29 | 939.86 |
| Missed | -.397 | 157.983 | .692 | -237.29 | 941.95 |

*Note*: Please note that both rows are reported for data transparency. Row one represents equal variance assumed and row two represents the equal variance not assumed.

**Post-Intervention Data**

The sample size for the data after the personalized learning intervention consisted of 300 students for the 2017-2018 and 2018-2019 school years. The data were examined for normality with skewness and kurtosis statistics and also with histograms. Regarding number of minutes missed for students in School A, who received personalized learning, the skewness (1.48, *SE* = .20) and kurtosis (2.15, *SE* = .39) coefficients were greater than 1. The histogram for the number of minutes missed by students who received personalized learning is presented in Figure 4.

**Figure 4**

*Histogram of Number of Minutes Missed by School: Post-Intervention Data*
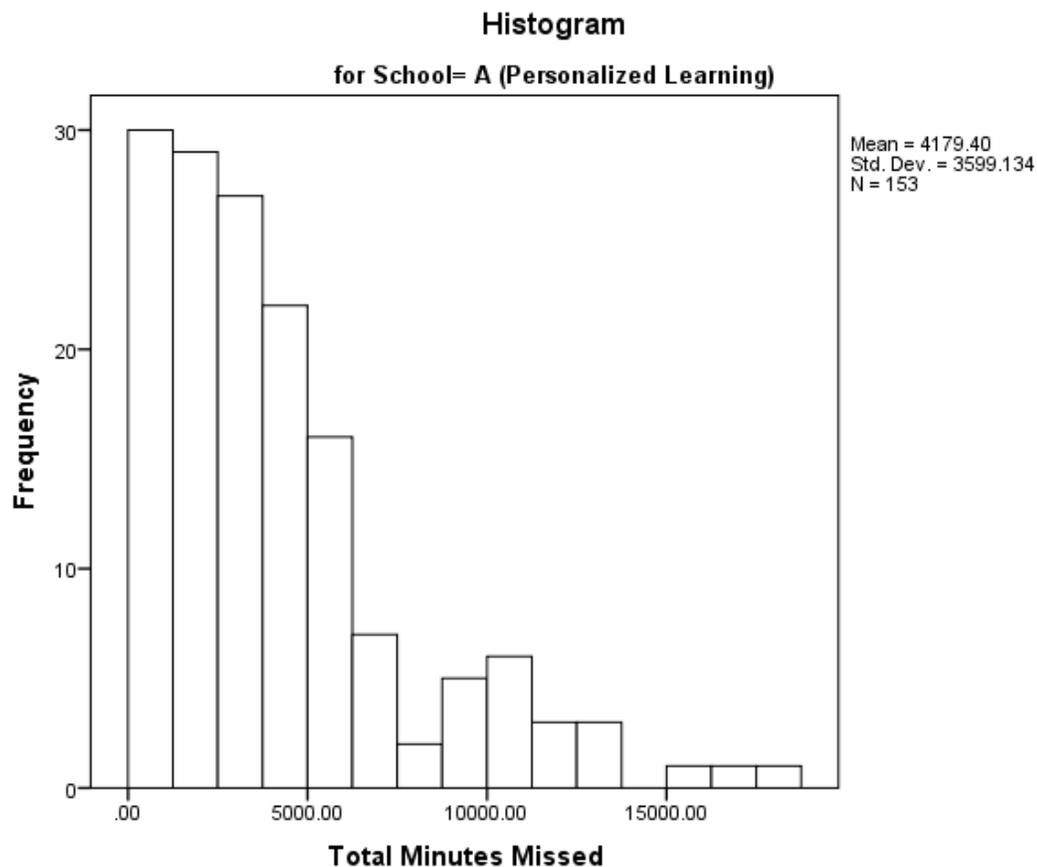


**Histogram**

For number of minutes missed for students in School B, who did not receive personalized learning, the skewness (1.42, *SE* = .20) and kurtosis (2.30, *SE* = .40) coefficients were greater than 1. The histogram for number of minutes missed by students who did not receive personalized learning is presented in Figure 5.
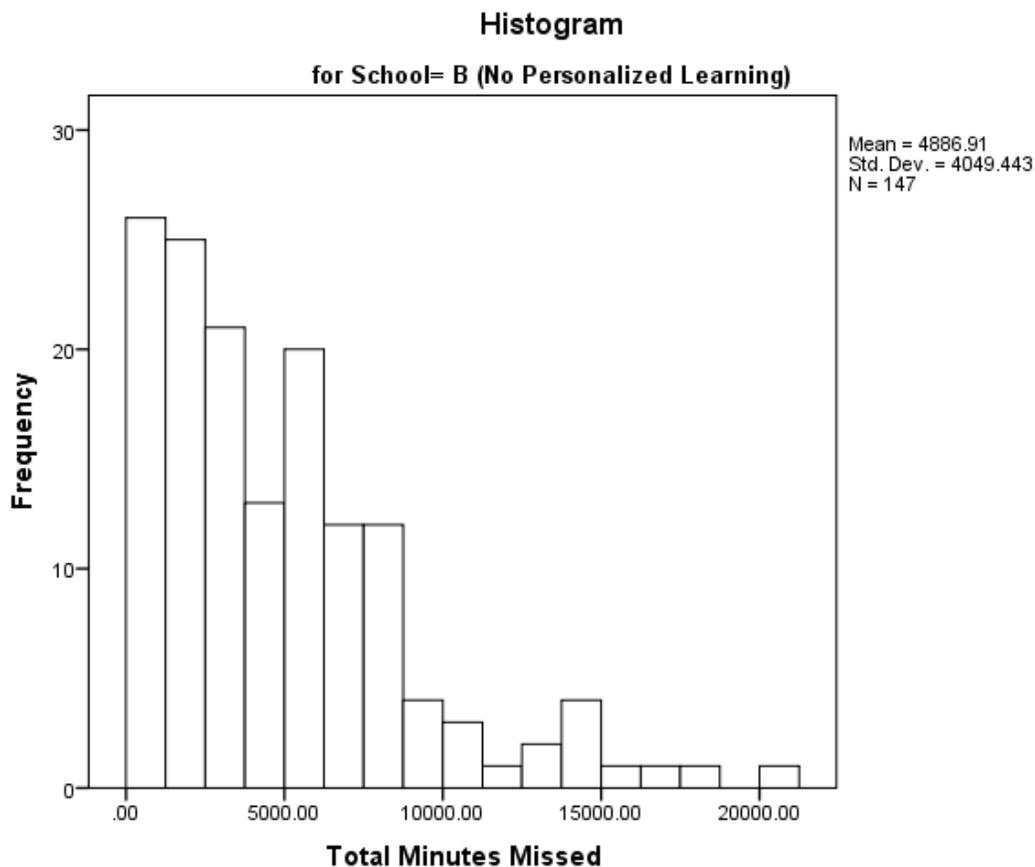
**Figure 5**

*Histogram of Number of Minutes Missed by School: Post-Intervention Data*

## Histogram
### for School= B (No Personalized Learning)



Mean = 4886.91
Std. Dev. = 4049.443
N = 147

The distribution of values for number of minutes missed for students in School A, who received personalized learning, had 10 statistical outliers $\geq 11,200$. The distribution of values for number of minutes missed for students in School B, who did not receive personalized learning had 7 statistical outliers $\geq 14,516$. The box and whisker plot of number of minutes missed by personalized learning is presented in Figure 6.

**Figure 6**

*Box and Whisker Plot of Minutes Missed by School: Post-Intervention Data*
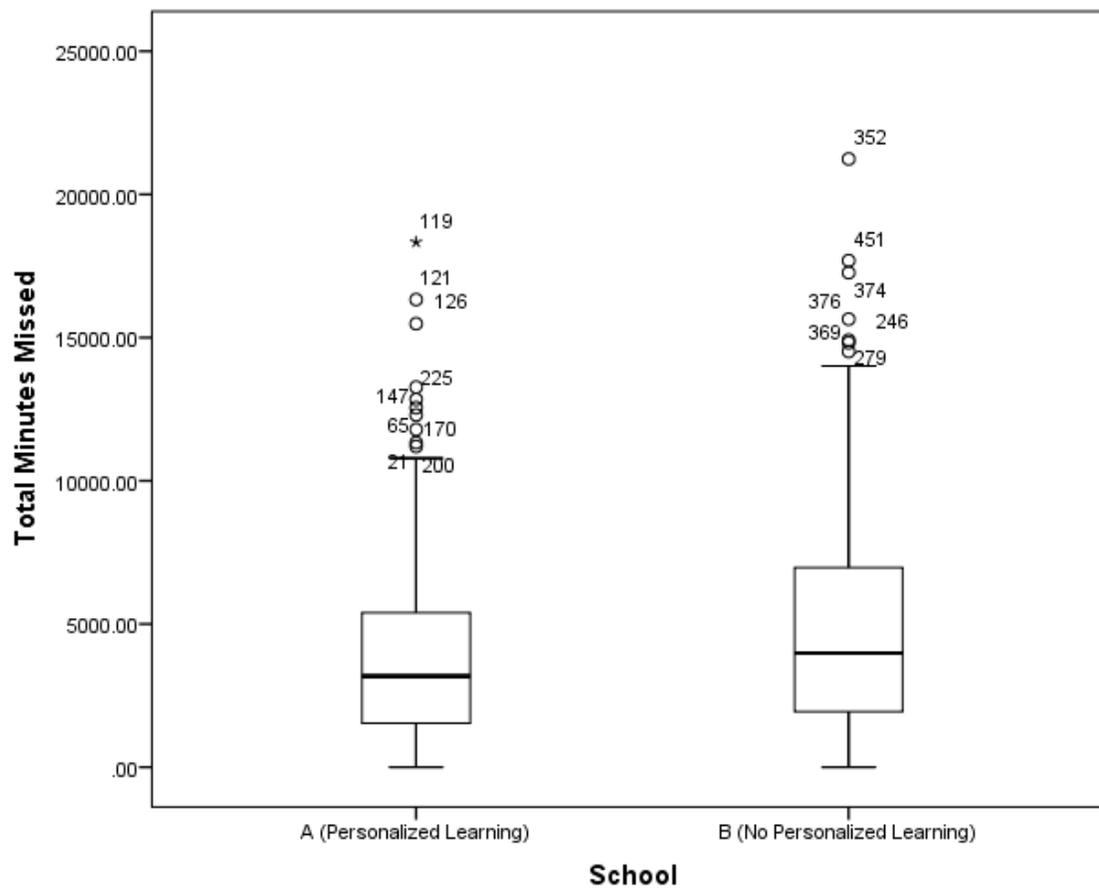


*T test* group means are presented in Table 8.

**Table 8**

*T test Group Means for Post-Intervention Data*

|  | School | n | M | SD | SEM |
|---|---|---|---|---|---|
| Total Minutes Missed | A (Personalized Learning) | 153 | 4,179.40 | 3,599.13 | 290.97 |
|  | B (No Personalized Learning) | 147 | 4,886.92 | 4,049.44 | 333.99 |

Levene's Test for Equality of Variances indicated that the assumption had not been violated, *p* = .213. There was no significant difference in the number of minutes missed between students who received personalized learning (*M* = 4,179.40, *SD* = 3,599.13) and students who did not receive personalized learning (*M* = 4,886.92, *SD* = 4,049.44), *t*(298) = -1.60, *p* = .110, two-tailed. The mean difference was 707.51 minutes. *T test* results are presented in Table 9.

**Table 9**

*T test Results for Post-Intervention Data*

|  | t | d | p | Mean Difference | Std. Error Difference |
|---|---|---|---|---|---|
| Total Minutes | -1.60 | 298 | .110 | -707.51 | 441.92 |
| Missed | -1.60 | 290.82 | .111 | -707.51 | 442.96 |

*Note***:** Please note that both rows are reported for data transparency. Row one represents equal variance assumed and row two represents the equal variance not assumed.

$H_{01}$ stated that there is no significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning. There was no significant difference in the number of minutes missed between students who received personalized learning ($M = 4,179.40$, $SD = 3,599.13$) and students who did not receive personalized learning ($M = 4,886.92$, $SD = 4,049.44$), $t(298) = -1.60$, $p = .110$, two-tailed, equal variances assumed. Therefore, the null hypothesis was not rejected.

### Research Question 2/Hypothesis 2

**Baseline Data**

*To what extent is there a difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning?* Research Question 2 was answered with a chi-square test of independence. The number of case entries for the baseline data consisted of 633 case entries. For the baseline data, 37.3% ($n = 236$) of the case entries were excused relative to the students who attended School A. The expected number was 214 compared to 30.6% ($n = 194$) of their counterparts in School B, which had an expected count of 216. Relative to the total case entries, 3.2% ($n = 20$) were exempt. The expected count was 11.9 compared to 0.6% ($n = 4$) of their counterparts in School B, who had an expected count of 12.1. Among the total case entries, 9.3% ($n = 59$) of the absences were unexcused relative to School A. The expected count was 89.1 compared to 19.0% ($n = 120$) of their counterparts in School B with an expected count of 89.9. The overall difference was statistically significant, $X^2$ (2,

$N = 633$) $= 35.54$, $p < .001$. A contingency table of school by absent excuse is presented

in Table 10.

**Table 10**

*School by Absent Excuse: Baseline Data*

|  |  |  | Absent Excuse | | | |
|---|---|---|---|---|---|---|
|  |  |  | Excused | Exempt | Unexcused | Total |
| School | School A | Count | 236 | 20 | 59 | 315 |
|  |  | Expected Count | 214.0 | 11.9 | 89.1 | 315.0 |
|  |  | % of Total | 37.3% | 3.2% | 9.3% | 49.8% |
|  |  | Adjusted Residual | 3.8 | 3.4 | -5.3 |  |
|  | School B | Count | 194 | 4 | 120 | 318 |
|  |  | Expected Count | 216.0 | 12.1 | 89.9 | 318.0 |
|  |  | % of Total | 30.6% | 0.6% | 19.0% | 50.2% |
|  |  | Adjusted Residual | -3.8 | -3.4 | 5.3 |  |
| Total |  | Count | 430 | 24 | 179 | 633 |
|  |  | Expected Count | 430.0 | 24.0 | 179.0 | 633.0 |
|  |  | % of Total | 67.9% | 3.8% | 28.3% | 100.0% |

Chi-square results are presented in Table 11.

**Table 11**

*Chi-Square Test Results: Baseline Data*

|  | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 35.54[a] | 2 | .000 |
| Likelihood Ratio | 36.95 | 2 | .000 |
| Linear-by-Linear Association | 23.70 | 1 | .000 |
| N of Valid Cases | 633 | | |

*Note.* 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.94.

A bar graph of these disparities is presented in Figure 8.

**Figure 8**

*Clustered Bar Graph of School by Absent Excuse: Baseline Data*
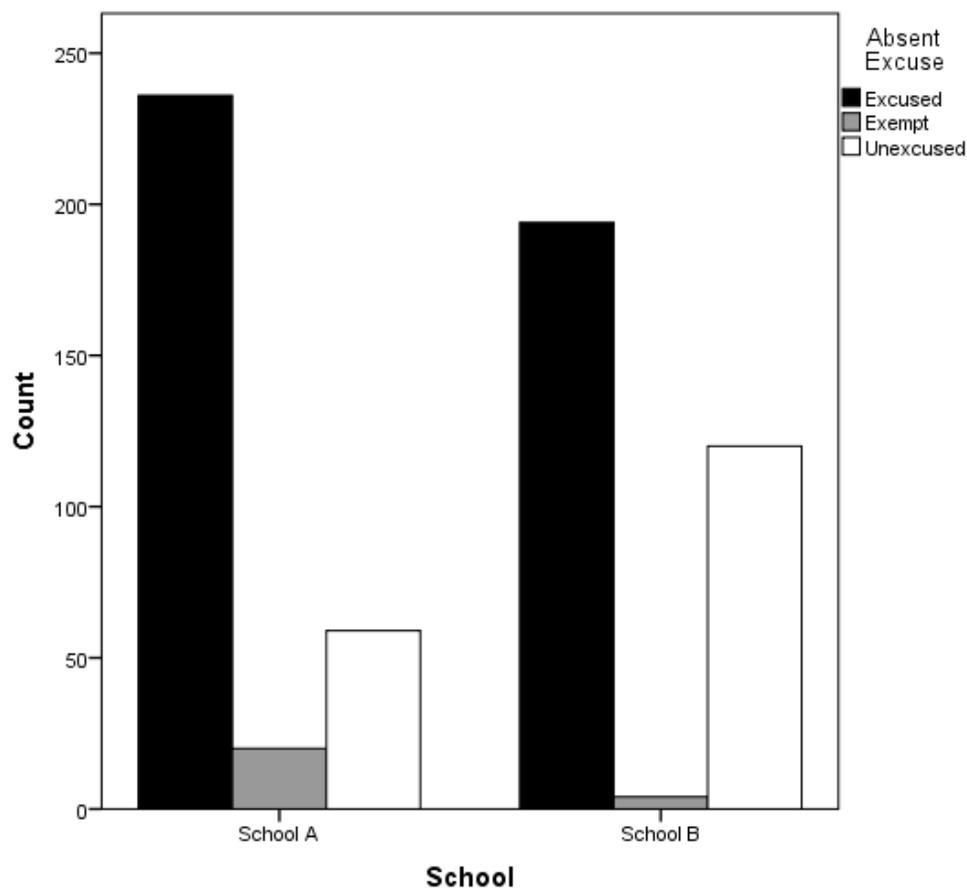


A post hoc analysis was conducted on the chi-square results. Adjusted residuals for all pairwise comparisons exceeded the ± 1.96 threshold for statistical significance. A Bonferroni correction was applied for multiple ($n = 6$) comparisons and the significance level was adjusted to .008. The residuals were compared to a chi-square distribution using the "Sig.Chisq" function. Each pairwise comparison was statistically significant. See Table 12.

**Table 12**

*Chi-Square Bonferroni Adjusted Post hoc Comparisons for Baseline Data*

| Adjusted Residual | *p*-Value |
|---|---|
| 3.80 | .00014 |
| 3.40 | .00067 |
| -5.30 | .00000 |
| -3.80 | .00014 |
| -3.40 | .00067 |
| 5.30 | .00000 |

**Post-Intervention Data**

The number of case entries for the post-intervention data consisted of 1,203 case entries. For the post-intervention data, 35.3% ($n = 425$) of the case entries were excused relative to the students who attended School A and received personalized learning. The expected count was 392.5 compared to 31.4% ($n = 378$) of their counterparts in School B, who did not receive personalized learning and had an expected count of 410.5. Relative to the total case entries, 2.9% ($n = 35$) were exempt. The expected count was 17.6 compared to 0.1% ($n = 1$) of their counterparts in School B, which had an expected count of 18.4. Among the total case entries, 10.6% ($n = 128$) of the absences were unexcused relative to students who received personalized learning. The expected count was 177.9 compared to 19.6% ($n = 236$) of their counterparts who did not receive personalized

learning with an expected count of 186.10. The overall difference was statistically

significant, $X^2$ (2, $N = 1203$) = 66.33, $p < .001$. A contingency table of school by absent

excuse is presented in Table 13.

**Table 13**

*Personalized Learning by Absent Excuse*

| | | | Absent Excuse | | | |
|---|---|---|---|---|---|---|
| | | | Excused | Exempt | Unexcused | Total |
| School | School A | Count | 425 | 35 | 128 | 588 |
| | (Personalized | Expected Count | 392.5 | 17.6 | 177.9 | 588.0 |
| | Learning) | % of Total | 35.3% | 2.9% | 10.6% | 48.9% |
| | | Adjusted Residual | 4.0 | 5.9 | -6.3 | |
| | School B (No | Count | 378 | 1 | 236 | 615 |
| | Personalized | Expected Count | 410.5 | 18.4 | 186.1 | 615.0 |
| | Learning) | % of Total | 31.4% | 0.1% | 19.6% | 51.1% |
| | | Adjusted Residual | -4.0 | -5.9 | 6.3 | |
| Total | | Count | 803 | 36 | 364 | 1203 |
| | | Expected Count | 803.0 | 36.0 | 364.0 | 1203.0 |
| | | % of Total | 66.7% | 3.0% | 30.3% | 100.0% |

Chi-square results are presented in Table 14.

**Table 14**

*Chi-Square Test Results: Post-Intervention Data*

|  | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 66.33[a] | 2 | .000 |
| Likelihood Ratio | 75.45 | 2 | .000 |
| Linear-by-Linear Association | 31.07 | 1 | .000 |
| N of Valid Cases | 1203 | | |

*Note*. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.60.

A bar graph of these disparities is presented in Figure 9.

**Figure 9**

*Clustered Bar Graph of Personalized Learning by Absent Excuse*
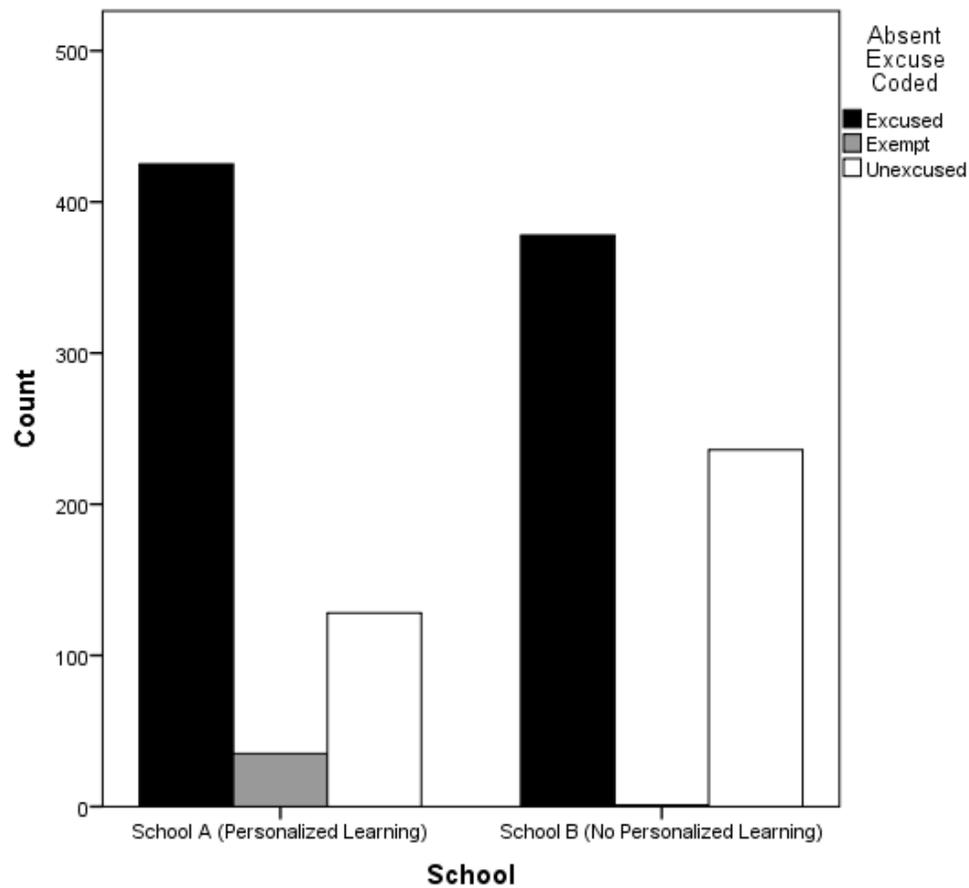


A post hoc analysis was conducted on the chi-square results. Adjusted residuals for all pairwise comparisons exceeded the ± 1.96 threshold for statistical significance. A Bonferroni correction was applied for multiple (*n* = 6) comparisons and the significance level was adjusted to .008. The residuals were compared to a chi-square distribution

using the "Sig.Chisq" function. With each pair of comparisons, significance was

observed.

**Table 15**

*Chi-Square Bonferroni Adjusted Post hoc Comparisons for Post-Intervention Data*

| Adjusted Residual | $p$-Value |
| --- | --- |
| 4.00 | .0000633 |
| -4.00 | .0000633 |
| 5.90 | .0000000 |
| -5.90 | .0000000 |
| 6.30 | .0000000 |
| -6.30 | .0000000 |

Based on the decreased p-values as shown in Table 15, I interpreted the results as

indicating some impacts of personalized learning.

$H_{02}$ stated that there is no significant difference in reasons for absences between

students who received personalized learning and students who did not receive

personalized learning. There was a significant difference in reasons for absences between

students who received personalized learning and students who did not receive

personalized learning, $X^2$ (2, $N = 1203$) = 66.33, $p < .001$. Therefore, the null hypothesis

was rejected. Hypotheses and outcomes are summarized in Table 16.

**Table 16**

*Hypothesis Summary and Outcomes*

| Hypothesis | Statistical Test | Significance | Outcome |
|---|---|---|---|
| $H_{01}$: There is no significant difference in average attendance between students who received personalized learning and students who did not receive personalized learning. | Independent Samples *T test* | $p = .110$ | Null Not Rejected. |
| $H_{02}$: There is no significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning. | Chi-Square | $p < .001$ | Null Rejected. |

## Summary

Two research questions and hypotheses were generated for investigation. It was determined that there was no significant difference in average attendance between students who participated in personalized learning and students who did not participate in personalized learning. There was a significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning. Recommendations and implications will be discussed in Chapter 5.

## CHAPTER 5: CONCLUSIONS AND DISCUSSION

The primary purpose of this quantitative study was to investigate whether a significant difference existed in days of classroom attendance between students who received personalized learning and students who did not receive personalized learning amongst a sample of fourth-grade students in a Wisconsin public school district. In addition, a secondary purpose of this study was to determine if there was a significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning. Few studies have quantitatively evaluated the impact of personalized learning on students' classroom attendance; therefore, this study is important, as it will add to the current body of literature on personalized learning as a model to provide students with 21st-century skills. The results can also be used to support schools with accountability obligations under Every Student Success Act (ESSA).

In this study, the researcher used a casual-comparative research design to answer two research questions. This research design was selected because it allowed the researcher to explore the reasons behind existing differences between the two groups (Martin & Bridgmon, 2012). In this study, the researcher used all fourth-grade students from two Wisconsin public schools within one school district. At one school, personalized learning was used in the classroom, and at the other school the model was absent. Baseline data from the 2016-2017 school, the year before personalized learning was implemented, and data from both the 2017-2018 and 2018-2019, the first two years

of personalized learning implementation at School A, were used to answer the two

research questions.

To test the hypothesis of the two research questions that guided this study, the

independent samples *t test* and Chi-Square Test of Independence were used to determine

if a significant difference exists between the variables. During the data analysis process,

SPSS 23 for Windows was used. The remainder of Chapter 5 is organized into the

following sections: (a) discussion of findings and conclusions, (b) applications of

findings and conclusions to the problem statement, (c) application to leadership, (d)

recommendations for actions, (e) recommendations for further research, and (f)

conclusion.

**Discussion of Findings and Conclusions**

The first research question tested whether there was a difference in the average

attendance between students who received personalized learning and students who did

not receive customized learning. The results produce from testing showed that there was

no significant difference in the number of minutes missed between students who received

personalized learning ($M=4,179.40$, $SD=3, 599.13$) and those students who did not

receive personalized learning (M=4,886.92, $SD=4, 049.44$). Therefore, the null

hypothesis was not rejected, and the researcher concluded that there was no significant

difference in attendance between students who received personalized learning and those

which did not. The focus of Research Question 2 was to determine whether there was a

difference in the reasons for absences between students who received personalized

learning and students who did not receive personalized learning. The analysis for this research question showed that there was a significant difference in reasons for absences between students who received personalized learning and students who did not receive personalized learning, $X^2$ (2, $N = 1203$) = 66.33, $p < .001$. Therefore, the null hypothesis was rejected.

**Application of Findings and Conclusions to the Problem Statement**

The results of the data analysis for Research Question 1 can be examined through the literature that was presented in Chapter 2; in particular, the impact of personalized learning on the relationship between student and teacher. Personalized learning encourages engagement of students and allows for differentiated teaching and learning to occur. As researchers have concluded, relationships are the driving force behind personalized learning, as it allows for teachers to leverage these relationships to develop programming that will service the unique need of students (Farmer, 2016; New, 2017). As a result of these relationships, teachers are able to more readily connect with students, thus minimizing the number of absences accumulated by students. The variable of teacher-student relationship may contribute to why no significant difference was evident between both schools. It is evident from the district's website and literature that relationships and partnerships between the student-teacher and school-family are important. If the connection between the student and teachers that researchers have discovered is present on both campuses, the impact would be the same regardless of whether personalized learning was used as an instructional model or not.

Student engagement must also be considered for the lack of significant difference between both groups. As presented in Chapter 2, student engagement has three interconnected and distinct dimensions as described by Fredericks et al. (2004): cognitive, behavioral, and emotional. Students' behavioral engagement is linked to the positive conduct of students, such as students' desire to adhere to the rules and regulations that have been set by the school and district, and this engagement could also lead to negative impacts such as school truancy (Fredricks et al., 2004). Educators must consider both the findings of this study and additional outside factors such as the students' emotional, cognitive, and behavioral engagement. These engagements allow for students to be more involved in the learning process and make room for them to be an active participant in the academic setting. In essence, the teacher gives room for the student to be heard and therefore the student wants to be present in school. As a result, while understanding the impact of personalized learning on attendance is needed, it is also important that outside variables such as relationships and human connections could also be contributing factors to the lack of a significant difference.

The focus of Research Question 2 was to determine whether there was a difference in the reasons for absences between students who received personalized learning and students who did not receive personalized learning. The analysis for Research Question 2 showed that a significant difference existed in the reasons for absences between those students who received personalized learning and those which did not.

The results of Research Question 2 can be examined through the literature as provided in Chapter 2 and the characteristics of personalized learning. The school that implemented personalized learning leveraged aspects of personalized learning such as student's voice and choice, anywhere/anytime learning, and frequent feedback from teachers and peers. Runner (2018) conducted a qualitative study that identified specific roles of the teacher, and one of the key observations was the willingness of teachers to adjust their own pedagogical view (i.e., loosen, tighten, or alter their viewpoint). Based on the literature, it can be hypothesized that School A may have had teachers which became the instructional leaders on their campus and within the district to create a shift in their instructional practices so that students have more voice and choice in their learning. Personalized learning requires teachers to believe that they are change agents so that all students can learn and progress. Therefore, future research should continue to look at the role of the teacher when personalized learning is implemented as a critical component of this instructional model.

## Application to Leadership

Educators, specifically school leaders and teachers, are charged with creating environments for students that will allow them to thrive inside the classroom and in society. This means leaders must implement systems that encourage students' individualized growth and progress and no longer operate using a one-size-fits-all system. This shift from teacher-centered to student-centered learning represents a change not only for students but in educators' own pedagogical approaches. However, as outlined in

Chapter 1, these shifts are not new components born out of personalized learning but

instead have existed for over 300 years in other models and continue to impact new

instructional models like personalized learning (Darling-Hammond et al., 2019). It is

important that educators seek not to re-invent approaches but continue to implement

research-based approaches.

Changes in education, such as the implementation of personalized learning or

creating new accountability measures, do not just impact academics but also areas outside

of state testing and grades. Across the public education system, under ESSA, educational

leaders are now being held accountable for the absences of students. This transition under

ESSA allows educators to use attendance as measurement to define and measure the

quality of their school setting. As schools consider attendance as part of their

accountability measures, educators must now look for ways to better address this issue

within their classrooms.  While much research exists on why students are absent from

schools, the current field of literature still lacks research on how implementation of many

suggested instructional practices impacts students' attendance (Bauer et al, 2018;

Ginsburgh et al., 2014). While other outside factors might have contributed to the results

of this study, educators still need to take an interest in personalized learning as an

instructional model that can impact students' desire to attend classes and impact the

accountability under ESSA.

Overall, educational leaders—both administrators and teachers—must take heed

of varying instructional methods, including personalized learning and the impact it has on

students' school attendance to ensure success for all. This study provides educational

leaders with research regarding the direct impact of personalized learning on student

attendance and equips leaders with a research-based option to address the high levels of

disengagement in today's schools. Finally, these results can provide additional research

to assist with creating systems to meet accountability standards because the study showed

that there was a significant difference in reasons for absences between those which

received personalized learning and those which did not.

<div align="center">**Recommendations for Action**</div>

While much research exists on personalized learning and the impact on student

achievement as provided in both Chapters 1 and 2, their still exists a large gap in the

literature on how personalized learning has an impact on student engagement, particularly

student attendance. However, research has shown a correlation between school

attendance and academic success (Gottfried, 2013). This study contributes to the field of

education and literature for researchers, policymakers, practitioners, and parents on the

impact of personalized learning on school attendance. The results allow schools to

determine if personalized learning as an instructional model is something they want to

implement to address students' attendance.

As educators are forced under ESSA to scale back from using only standardized

test scores for accountability and must instead include at least one measurement that is

nonacademic, educational leaders are using attendance as this nonacademic measurement

(Baur et al., 2018). Paired with this shift in accountability, leaders are also creating shifts

with instructional approaches, and the findings of this study allow educational stakeholders to make a more informed decision on both accountability and personalized learning as an instructional model that can increase engagement of students and the overall accountability of schools. Research has shown that when educators create educational programs that engage students, attendance rates increase (Chang & Romero, 2008).

Personalized learning considers both the learning environment and curriculum of each student (Green, 2017). The null hypothesis for research question one was not rejected in this study, which concluded there was no significant difference in the two sampled populations. Therefore, it is important for educators to understand that external variables may affect attendance, as well. These factors may be found in either instructional models that were used with the sample students or in practices mandated from the district (e.g., building strong relationships, parent engagement, and other universal strategies). Finally, it is important that educators who seek to implement any new instructional model consider the voice of the learner from the inception to the implementation of the instructional model. One of the key pillars of personalized learning is the voice and choice of students. The inclusion of students' voices will help build meaningful relationships and student agency.

## Recommendations for Further Research

This study examined whether there was a significant difference in attendance rates between students who received personalized learning and those which did not in a

Wisconsin public school district. The findings of the study yielded mixed results, since a

significant difference was only observed for one of the two variables examined. Given

the lack of quantitative studies in regard to personalized learning, it is recommended that

this study is replicated on a larger scale. A larger sample might yield different results that

are more reliable and can better inform educators on how personalized learning has an

impact on attendance.

In addition to replicating this study with a larger sample, the following

recommendations are based upon gaps in literature centered on personalized learning,

findings in Chapter 4, and the conclusions as outlined in this chapter.

1. Conduct qualitative research to gain a deeper understanding and perspective from students, teachers, and administrators on how they see personalized learning impacting attendance. The perspectives of these key stakeholders will allow for both teachers and administrators to clearly implement a model that will have a deeper impact on students' attendance and therefore impact accountability under ESSA.

2. Conduct a study using quantitative research measuring the relationship between students' race, personalized learning, and attendance. This research would provide evidence to determine if personalized learning as an instructional model would support some of our most marginalized populations.

3. Conduct a study using both quantitative and qualitive research methods to examine policies, implementation methods, and personalized learning characteristics used with school district and the impact on both academic and nonacademic factors.

4. Conduct a quantitative study that determines if personalized learning has a significant influence on state testing results.

5. Conduct a research study that utilizes a mixed method to investigate the assumptions of parents and what they believe to be true about personalized

learning. This study would provide further guidance on how to engage parents as part of the educational process and personalized learning implementation.

The recommendations provided for additional research would address gaps in literature and allow educational leaders to create more meaningful personalized learning experiences for all students.

## Concluding Statement

As educators across the nation consider instructional models to implement to assist with not just state accountability but also student engagement and achievement, many are turning to personalized learning. While results from this study were mixed, a small sample was used, and only 2 years of data were included, the results did provide some baseline understanding of the impact of personalized learning on student attendance. However, continual research is needed to truly understand the impact of this instructional model. Future research should not just observe the classroom but should also examine how this model is impacting decisions on all levels within the district.

It is clear that while this study yielded some significant results, replication of this study on a broader scale could provide additional insights. It is also clear that additional research on personalized learning is needed and not just in the area of student achievement but, also areas such as engagement, implementation, and overall benefits are needed to understand the holistic impact of this instructional model. However, as a starting point, this study contributed to a growing base of research focusing on personalized learning as a strategy to improve the student educational experience.

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# APPENDIX A: ATTENDANCE CODE DESCRIPTIONS

| Name | Status | Excuse | Description: To be Used When a Student : |
|---|---|---|---|
| Administrative Excuse | Absent | Exempt | is physically in the building, receiving services, but not in scheduled class |
| Bereavement | Absent | Excused | is bereaved and/or attending the funeral of an immediate family member Immediate family is first layer of family, grandparents, aunts, uncles, cousins. |
| Excused | Absent | Excused | For Chief of Schools Use only |
| Family Emergency | Absent | Excused | has an immediate family member with a serious illness or medical condition; and student is needed at home |
| Hospitalized | Absent | Excused | is ill to the extent that they are in hospital or for treatment |
| Illness | Absent | Excused | is ill to the extent that they are not in proper physcial or mental condition to attend school |
| Inclement Weather | Absent | Excused | has a parent who is concerned about sending their child out of the home in extreme weather conditions, or is late because of inclement weather. |
| Medical Appointment | Absent | Excused | is at a medical appointment that can not be scheduled outside of school hours |
| Not Applicable | Absent | Exempt | does not provide an excuse or reason for being absent during school hours |
| Nurse's Office | Absent | Exempt | is ill and physically in the Nurse's office |
| Out of School Suspension | Absent | Excused | is under an Out of School Suspension |
| Pre-Approved Absence | Absent | Excused | Board requires it to be in writing from the parent and should be revieiwed by principal. Maximum days allowed is 10 days. Sample usage of this code would be if a family is going to be on vacation, visa requests, drivers test, college vists, death of extended family or friends, etc. these would be reasonable reasons for a PAA. This would not be used for purposes of being late for school. |
| Religious Holiday | Absent | Excused | is observing a religious holiday or participating in not more than 180 minutes of religious instruction per week |
| Tardy Excused | Tardy | Excused | Tardy due to one of the 8 excused reasons allowed by state statute or BOE |

| Tardy Unexcused | Tardy | Unexcused | Tardy for any other reason other than the 8 excused reasonse allowed by state statue or BOE |
|---|---|---|---|
| Transportation | Absent | Excused | is absent or late due to MMSD provided transportation delay |
| Unexcused Absence | Absent | Unexcused | For any reason other than the 8 excused reasons allowed by state statute |