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Effects of Participation in the Summit Learning Platform by Gender on Student Academic Achievement

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EFFECTS OF PARTICIPATION IN THE SUMMIT LEARNING PLATFORM BY GENDER ON STUDENT ACADEMIC ACHIEVEMENT

by

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ABSTRACT

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Title: Effects of Participation in the Summit Learning Platform by Gender on Student Academic Achievement (Under the direction of Dr. Kim Flowers)

The purpose of this dissertation was to determine the effects by gender of the Summit Learning Platform on student achievement in mathematics, English, reading, and Science measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. This study provides an in-depth study of mastery learning versus personalized learning through the Summit Learning Platform. The theoretical framework is centered on the comparisons of the mastery mode of learning. Schools A and D participated in the Summit Learning Platform for 2 years. Schools B and C did not participate in the personalized learning platform. Scores from 120 ninth-grade students were obtained through a stratified random sample by participation and gender. Equal numbers for male and females participating in the Summit Learning Platform and not participating were analyzed. A 2 x 2 factorial ANOVA was used to determine if a statistical difference existed. The results indicated no significant interaction between participation in the Summit Learning Platform, however, when analyzed separately, a significant interaction existed on Summit Learning Participation in three of the four hypotheses and a significant interaction on gender in two of the four hypotheses.

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CHAPTER I

INTRODUCTION

Educational methods of instructional delivery are seeing a change with personalized learning. Some researchers believe that this method of learning may be the answer to bridging the gap between education and the workforce (Wolf, 2010). Personalized learning allows students to adjust their learning to fit their strengths, needs, and interests. Students are given a voice in choosing the best approach for their learning capacity, and their teachers provide feedback and support to encompass proficiency in learning. Educators have been tasked with the demands of implanting new instructional practices to improve student learning (Guskey, 2009). Although schools have been designed to meet the demands of using innovative instructional practices, questions remain regarding the successful implementation of personalized learning.

The conventional or traditional approach to learning was meant to stimulate everyone in the classroom to engage in one topic at the same time. As educators move away from the conventional approach, the role of the teacher has changed by allowing students to take ownership of their learning. The personalized learning model allows teachers to use data and technology to enhance learning and deepen relationships while creating pathways for student success (Forbus, 2018). The need for a new approach to education comes from the changes in society and the requirements for future jobs, which have not been invented (Rickabaugh, 2016). Because many of the jobs in the future will

require innovative and creative thinkers, teachers must help students to bridge the gap between their education and the workforce.

Requirements of today's workers include adapting to change, thinking creatively, and using critical thinking skills to solve and analyze problems. The educational systems try to match the demands of society and provide students with individual experiences that connect learning and provide them with rich and relevant experiences rather than content alone. Even with the knowledge of the increasing desire for changes in the learning environment, many schools remain largely the way they were designed 100 years ago (Rickabaugh, 2016). Initiatives like supplemental instruction, Response to Intervention, and other programs that put a focus on remediating students have cost schools millions of dollars, with some schools not seeing the success anticipated. However, other schools have addressed the demands of revolutionizing the current form of education by implementing programs aimed at developing critical thinking and problem-solving skills.

Personalized learning is designed on the premise of flexible learning where students make frequent connections, and teachers give timely feedback pertinent to the individual students. The classroom culture is influential, built on the foundation where learning is transparent, environments are flexible, and instruction is tailored to meet students where they are (Forbus, 2018). During the process of personalizing learning in the classroom, students are aware of the curriculum and the progression towards mastery. Educators spend countless hours developing learning playlists, blending learning, and using technology as a tool to enhance the experiences for students and to make meaningful connections in their learning.

In 2003, Summit Public Schools was founded on the principle that every child should develop the skills and habits that lead to academic success. The goal of the school was to help students graduate with a deeper understanding of how to achieve mastery of learning and implement those strategies into their daily practices. Summit Learning uses personalized teaching and learning to empower students to ignite their drive for success (Summit Learning, 2018). Facebook creator Mark Zuckerberg made headlines when he and his wife, founders of the Chan Zuckerberg Initiative (2018), gifted $13 million towards groups implementing innovative ideas that advanced personalized learning. The baseline of personalized learning focuses on understanding students, giving them the ability to learn at their own pace, and letting them do work that is relevant and engaging (Shelton, 2017). The Summit Learning Platform was created in 2015 after they partnered with Facebook to co-build a platform to share with other schools across the country.

Schools in Arkansas are tasked with meeting the demands of educational policies created by the Arkansas Department of Education. Each school's administrators have the autonomy to determine how they will strive to be innovators for the children they serve. Act 1280 of 2013 requires schools to provide for the expansion of digital learning opportunities to all Arkansas public school students (Arkansas Department of Education, 2015). According to the International Association for K-12 Online Learning, three avenues provided Arkansas with the direction in implementing the digital learning component: blended learning, digital learning, and online learning (Arkansas Department of Education, 2011). The Summit Learning Platform provided a blended learning approach with a curriculum embedded in an online tool to assist students with setting and tracking goals, learning at their own pace, and completing projects to deepen their

mastery of content. The Summit Learning Platform now spans more than 330 schools from 40 different states. For the 2017-2018 school year, 15 Arkansas public schools piloted the program to meet their digital learning requirements and provide innovative opportunities for their students (McNeil, 2017). Innovation, coupled with a shift in mindset for administrators and teachers, provided students with a voice in their learning and choice in navigating their learning experiences.

Theoretical Framework

Classrooms in the United States have maintained the same structure, in general, over the last century. This complacency contradicts the ever-evolving business and industry of the economy. With an information-rich digital environment, students no longer need to sit in classrooms to obtain information on the Internet with various search engines (McCusker, 2014). As teachers recognize the changes in what their students need to know and how they should receive this information, educators must adapt their instructional practices to fit the best educational practices that promote innovation.

Personalized learning practices have grown by providing students with interactive learning experiences rather than only presenting them passively with information. According to the International Association for K-12 Online Learning or iNACOL, personalized learning includes five key elements that support meaningful learning experiences: learner profiles, personal learning paths, individual mastery, flexible learning environments, and student agency (Pipkin, 2015). The elements of personalized learning allow teachers to tailor the learning paths for each student based on their strengths, needs, and interests, which creates an environment for each student to achieve and grow through their personalized experiences. This study was aimed at describing the

processes used to personalize learning through a platform, the Summit Learning Platform, with a group of teachers who piloted the program transitioning from a conventional or traditional model to one focused on the personalized learning method.

Statement of the Problem

The purposes of this study were four-fold. First, this study was to determine the effects by gender between students participating in the Summit Learning Platform program versus no participation in the program on mathematics achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Second, this study was to determine the effects by gender between students participating in the Summit Learning Platform program versus no participation in the program on English achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Third, this study was to determine the effects by gender between students participating in the Summit Learning Platform program versus no participation in the program on reading achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Fourth, this study was to determine the effects by gender between students participating in the Summit Learning Platform program versus no participation in the program on science achievement measured by the ACT Aspire Assessment for ninth-grade students in four schools in Arkansas.

Background

Personalized System of Learning

Education today has undergone many structural changes to move away from the traditional factory model of the 20th century. Fred Keller constructed a theory in 1968

that used components of mastery learning and self-paced directives for students to guide themselves through units of inquiry. Keller based his foundations on the principles of behavior analysis and the personalized system of instruction (Twyman, 1998). The theory behind the personalized system of instruction was not an application of learning the material for testing but mastery (Keller, 1968). The framework was based on breaking material down into units for students to learn at their own pace until the information was mastered. Since the creation of the Keller School, many adaptations of personalized learning have been used to identify and have met the educational needs of students.

Personalized learning gained acceptance from educational theorists by allowing teachers to close the achievement gap, increase student engagement, and prepare students to be self-directed in their approaches to meet their specific needs. The personalized learning environment allows learners to set their own goals for learning, create a reflective process, and be flexible without the confinements of the traditional classroom (Patrick, Kennedy, & Powell, 2013). While personalized learning has benefits, resources such as blended learning are used to enhance the experience for students to be in charge of their learning. Blended learning involves using resources to supplement the specific work done in the classroom with students. Teachers used a blended approach to focus the learning on the instructional models first and then use technology as an enabler for high-level learning experiences.

Habits of Mind

Educators strive to develop their students academically and socially. Bena Kallick and Art Costa created the Habits of Mind as a transformative model of personalized learning that focuses on the students themselves and asks them to employ a specific set of

dispositions for engagement and learning (Kallick & Zmuda, 2017a). A Habit of Mind denotes that a person possesses a disposition toward behaving with intelligence when confronted with a problem to which the answer is not known (Costa, 1991). The theory behind this idea suggests that students are continuous learners of the 16 habits of mind, and the different habits become refined and habituated as these are performed daily. Using the components of the 16 habits increases students' ability to question and probe problems, think interdependently, and persist when answers are not immediately apparent, hence the connection to personalized learning.

The 16 habits are built from a framework that leaders must personally use before they try to persuade others to do so. Many schools blend the dispositional growth of habits of mind with personalized learning to foster a culture of continuous learning for both students and teacher leaders. To see success, however, school leaders must honor and support growth through the school culture. Students need opportunities to develop and build social capital and to learn how to interact with people in powerful positions (Berkowicz & Myers, 2018). The four priorities while establishing classroom norms are listed as student voice, co-creation, social construction, and self-discovery. Leaders naturally create personalized environments to foster two-way communication and collective accountability when they model these attributes in their interactions with other leaders.

Mastery Learning

Mastery learning is defined as a method of instruction where the focus is centered on the role of feedback in the learning process. Benjamin Bloom outlined the approach in the late 1960s and used two essential elements: (a) feedback, corrective, and enrichment

processes and (b) instructional alignment (Guskey, 2007). Bloom first called his strategy *learning for mastery* but then condensed the term to *mastery learning* (Hussain & Suleman, 2016). Mastery learning allows any teacher to help all students learn by providing their pupils with the proper time and additional support needed for them to succeed in school. Learning is divided into units based on the content, and students work through these units until they master the unit exams. Bloom's theory allows students to work cooperatively with their peers while the teachers design the flow and delivery of instructional content.

Mastery-based learning has become a widespread practice in schools across the East Coast because of its similarities with proficiency-based or competency-based learning. More than 40 schools in New York City have adopted the program and are implementing a program called Mastery Collaborative that provides schools with a common platform to share their educational experiences based on best practices and their connections around the city. Although no quick fix exists, personalized, competency-based education aids teachers in facilitating a more equitable curriculum in the classroom (Baucke, 2017). The Mastery Collaborative uses three practices to transform education: transparency in grading, changing power dynamics, and intentionally developing a positive learning identity. With all educational practices, the ability to recognize that without reflective, culturally competent teachers, mastery will not be the end effect.

Schools and Personalized Learning

Schools across the nation are using personalized learning not as an experiment but to reshape how students learn and master skills. New Orleans' education system explored personalized learning with the surge of charter networks to embrace the components of

the instructional method. KIPP Morial received a grant to fund Chromebooks and invest in software such as ST Math and Lexia to create blended classrooms that allow the teacher and student autonomy (Lurye, 2018). The software and technology allow teachers to spend more time working with students individually. This individualization of instruction is supported by research completed by the RAND Corporation that determined 17% of teachers devoted at least one-quarter of their class time to one-on-one student learning (Lurye, 2018). Personalized learning allows students to set specific, measurable, attainable, realistic, timely (SMART) goals for each content area that are specific to the learning targets the teachers align with their content. Blending technology and individual learning time with the teacher are two of the most common ways teachers are using personalized learning to provide specific learning paths for each student.

As conventional or traditional classroom practices are substituted with innovative strategies, school districts are changing the way they are delivering professional development. In 2012, Ottawa Area Intermediate School District designed a program called FuturePREP'd that supported teachers in the district by helping them increase their use of personalized learning strategies (Pasatta, Hamilton, & DeDoes, 2017). The program's presenters provided a series of intentional, immersive learning experiences for educators that covered the basics of innovation and personalized learning. Educators applied to the program and were required to obtain 60 hours of training for elementary educators and 120 hours of training for secondary educators. One of the unique opportunities the program offered was the ability for teachers to practice their learning in other schools before making changes to their classroom strategies. School districts

learned that embedded professional development allowed teachers to experience personalized learning firsthand and make real-world connections to their classrooms.

Summit Learning Platform

Summit Learning has spent the last 10 years making their platform user-friendly to help teachers and students find balance in mentoring and using the three pillars of success: 1:1 mentorship, individual platforms, and real-world projects. Research on the platform was one-sided for studies on personalized learning and general instructional methods. The researcher attempted to provide the reader with both views of instructional delivery methods.

One of the components of the Summit Learning Platform is mastery learning. Mastery learning has provided educators with tools based upon the work done by Benjamin Bloom (Guskey, 2009). Applying the concept of mastery learning, Bloom viewed classrooms as educational experiences and noted that if teachers could offer time and proper learning conditions, most students could reach high levels of achievement. In his research, Guskey (2009) noted elements of mastery learning that were consistent with highly effective instruction and student learning success. He categorized the elements of mastery learning into the following: (a) diagnosing through pre-assessment and pre-teaching, (b) teaching through high-quality, group-based initial instruction, (c) monitoring progress, (d) providing high-quality corrective instruction, (e) implementing parallel formative assessments, (f) using enrichment, and (g) extending success. This cycle of elements has been used in classrooms to put the needs of the student at the forefront and to use data to initiate all planning for students to master the material provided.

The platform created through Summit Learning is based on the conceptual ideas from personalized learning. Unlike a traditional classroom, personalized learning environments represent three characteristics to deepen the learning for students. The components include the student-teacher bond being the heart of learning, learning can happen anywhere at any time, and all students are ready for college and career (Baird, Hamilton, Pane, Pane, & Steiner, 2015). The student-teacher bond uses one to one mentoring to build the rapport between students and teachers. During the mentoring time, teachers help students identify targeted learning goals for the week and review focus standards that were not mastered. In a study by the Bill and Melinda Gates Foundation (Baird et al., 2015) on addressing the achievement gaps, when coupled with college-ready standards and high-quality instruction, students involved in a personalized environment learning showed a significant increase in accelerating students' achievement. The researchers compiled data from 62 public charter and district schools that used various personalized learning approaches. The schools were funded by the Bill and Melinda Gates Foundation to work through various platforms of personalized learning. Still researchers noted that while the platform could be different; five core attributes were often present at each school. The five core attributes included learner profiles, personalized paths, competency-based progression, flexible learning environments, and emphasis on college and career readiness (Baird et al., 2015). Similar to Guskey's (2009) elements to mastery learning, those using personalized learning refined the practices by incorporating the technology platforms and digital content.

When Summit Schools developed their platform to use across the nation, advocates of the program felt justified using the personalized learning approach. Shelton

(2017), head of the Chan Zuckerberg Initiative's education division, stated they aimed to determine how to create the environments, tools, and resources that let teachers do their best work and benefit their students. The heart of the program, called Basecamp, is the franchising piece that the Chan Zuckerberg Initiative created with an open-source learning management system with full curriculum for Grades 6-12 embedded with projects, online learning resources, and tests (Chan Zuckerberg Initiative, 2018; Herold, 2017a). When the platform was released to public charter and general public schools, 19 schools took the initial Basecamp startup in 2015. Just 2 years later, 113 schools joined Basecamp, including 14 in Arkansas.

The Summit Learning Platform and personalized learning have support from educational leaders, but some researchers do not see validity in the research done. Riley and Hernandez (2015) reported the following:

> A large body of research shows that not all learners prefer or profit from controlling these tasks and that forcing control on them can be counterproductive. Many learners lack the capacity to appraise the demands of a task and their own learning needs. In other words, learners often regulate their learning poorly, exerting control in a misguided or counterproductive fashion and thus fail to achieve the desired result. (para. 5)

However, an assumption made with the use of personalized learning is that students will learn more if they have power over what is learned and the pace at which they master the skill. Personalized learning provides teachers and students the autonomy to design, implement, and reinforce the curriculum to adjust to students' needs. The primary research on personalized learning is through the Bill and Melinda Gates Foundation

RAND research organization. In a most recent study, RAND determined that one of the most significant challenges was time for teachers to develop lessons that were customized for each student and the amount of time spent on the concepts when teachers stick to the model of allowing students to attempt to pace themselves through each lesson (Herold, 2017b). However, because research is sparse in personalized learning, more studies are needed to determine if the use of platforms such as the Summit Learning Platform are viable options to increase student achievement in contrast to more conventional or traditional instruction formats.

Hypotheses

The initial review of the literature suggested that the Summit Learning Platform enhanced students' mastery of content. The researcher generated the following null hypotheses.

1. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on mathematics achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.
2. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on English achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.
3. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the

program on reading achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.

4. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on science achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.

Description of Terms

ACT Aspire Summative Assessment. The Arkansas Department of Education (2018) defined ACT Aspire as a criterion reference test given as an end-of-year summative assessment to all Arkansas public school students in Grades 3 through10 unless they qualify for an alternate assessment.

Chan Zuckerberg Initiative. Mark Zuckerberg and Priscilla Chan founded the Chan Zuckerberg Initiative (2018) in December 2015. Their work is philanthropic and brings engineering, grant-making, impact investing, and advocacy work to underserved communities. The initiative strives to build partnerships with populations that are underserved by identifying problems and building opportunities for community growth and development.

Mastery Learning. Guskey (2009) defined mastery learning as a method of instruction that focuses on the role of feedback in learning. Mastery learning requires differentiated learning, which allows students to cover materials by giving them more time, support, and explanations compared to conventional or traditional learning strategies.

Personalized Learning. Wolf (2010) defined personalized learning as students adjusting their learning to fit their strengths, needs, and interests. Students are given a voice in choosing the best approach for their learning capacity, and their teachers provide feedback and support to encompass mastery of learning.

Summit Learning Platform. The Summit Learning Platform is described as a platform to help teachers and students find balance in mentoring and using the three pillars of success: 1:1 mentorship, individual platforms, and real-world projects (Summit Learning, 2018).

Significance of the Study

Research Gaps

The Summit Learning Platform uses the four major content areas of English, mathematics, social studies, and science to provide real-world learning experiences for students through mastery of learning. The program started with one school and a group of teachers who wanted to change how students in their building thought about and interacted with the content presented (Patrick et al., 2013). The goal of Summit Learning was to make students responsible for their educational experiences by giving them more control over the learning. The literature was sparse regarding the effects of the Summit Learning Platform on student achievement and was mostly positive (Baird et al., 2015; Herold, 2017b). More research is needed to contrast the effects of the Summit Learning Platform learning environment and a more traditional learning environment on student performance in various academic content areas.

Instructional strategies are developed within the platform for teachers to use with the students as they align curriculum for pacing each power focus area. An inconsistent

definition of personalized learning exists that creates a lack of clarity for knowing which instructional strategies yield the most significant influence on student achievement (Baird, Hamilton, Pane, Pane, & Steiner, 2017). The shortage of evidence does not provide teachers or administrators with concrete evidence to determine the best pathway to personalize learning for students.

Possible Implications for Practice

The rationale for this study was based on the need to find a varied approach to mastering student achievement. Business leaders need high school graduates that possess specific skill sets, including innovation, creativity, and self-motivation. The complexity of blending the needs of the business industry with the delivery of the conventional or traditional educational system comes from the lack of educational evolution. Businesses are looking for students prepared to lead without prompting. The conventional or traditional educational system puts the teacher as the leader of the room who has to prompt students through each component of the designed assignments. If students do not learn to become self-directed, they do not develop the intrinsic motivation needed to break a failing cycle and to become self-regulated. School leaders are taking notice of this phenomenon and incorporating strategies to develop practices of personalized learning. High schools offer business classes that allow students to leave for internships derived from programs of study. Students can take courses at local colleges for credit in industry and trades and earn certificates of completion in areas such as certified nurse assistants and welding. Although implementing these various methods of personalized learning seems to be a positive step, a consistency of accurately defining the concept of personalized learning is still elusive. With the results of this study, superintendents and

building-level administrators should be able to broaden their curricular programming in their respective schools. The research from this study will determine if significant differences by program type and gender are present. By analyzing the effects of using the practices of personalized learning in the Summit Learning Platform, administrators should be able to use the relevant data points to develop learning communities to build capacity with leaders and teachers. They should also be able to determine if the concept of a personalized platform coupled with the mastery learning approach could yield gains in more challenging student subgroups.

Process to Accomplish

Design

A quantitative, causal-comparative strategy was used for this study. Each hypothesis was constructed using a 2 x 2 factorial between-group design. The independent variables for all four hypotheses included the Summit Learning Platform participation (students participating versus not participating) and gender (male versus female). The dependent variables for Hypotheses 1 through 4 were student achievement in mathematics, English, reading, and science as measured by the ACT Aspire Summative Assessment for the ninth-grade student from four Arkansas schools, respectively.

Sample

The sample in this study was ninth-grade students' scores from four academic achievement areas measured by the ACT Aspire Summative Assessment in four high schools in Arkansas, two participating in the Summit Learning Platform and two not participating. The researcher used a stratified random sampling process and subdivided

the students' scores by the Summit Learning Platform participation, school, gender, and race. For each hypothesis, the sample consisted of 120 ninth-grade students' scores: 60 from students participating in the Summit Learning Platform and 60 from students not participating (30 males participating, 30 females participating, 30 males not participating, and 30 females not participating).

Each year, schools are assigned a letter grade based on the Every Student Succeeds Act. The letter grades are a combination of academic achievement, weighted growth, school quality, and graduation rate. In Arkansas, 14 schools piloted the Summit Learning Platform in 2018. This study analyzed data from 2019 to determine if a significant difference existed between the Summit Learning Platform participation and gender on achievement in four academic content areas. The researcher chose four schools because of their unique needs for innovative strategies to improve academic achievement by the points accumulated in the weighted achievement category from their ESSA score. Two schools in the study participated in the Summit Learning Platform starting the 2017-2018 school year. Demographics for the four schools are displayed in Chapter III. The schools participating in the Summit Learning Platform and the schools not participating in the Summit Learning Platform had similar population totals. Also, a balance of free and reduced lunch percentages was similar between the schools participating and not participating in the Summit Learning Platform.

Instrumentation

The dependent variable for this study was student achievement from the 2019 ACT Aspire Summative Assessment for the ninth-grade students in each building. The ACT Aspire Summative Assessment consisted of five separate tests: mathematics,

English, reading, science, and writing. For this study, the writing score was not used. The writing section of the ACT Aspire Summative Assessment consists of one writing task that is scored, in most cases, by a single rater. ACT believed that the overall writing scales score should not be used for high-stakes decisions, including school accountability, and that the overall English Language Arts score was a more reliable measure that is appropriate for such interpretations (ACT Aspire, 2019). Each student's ACT Aspire Summative Assessment Score Report refers to ACT Readiness Benchmarks, ACT Readiness Ranges, and if he or she is in the eighth grade or above, a Progress toward Career Readiness. Even though the scale scores were measured against the ACT Readiness Benchmarks to create performance level indicators, the scale scores were used in the analyses (ACT Aspire, 2019).

ACT Aspire (2019) described the subject area tests in the following ways. The mathematics assessment consists of nine reporting categories: numbers and quantity, algebra functions, geometry, statistics and probability, grade level progress, integrating essential skills, modeling and justification and explanation. The English assessment has three reporting categories: production of writing, conventions of Standard English, and knowledge of the language. The Reading assessment includes three reporting categories: key ideas and details, craft and structure, and integration of knowledge and ideas. The science assessment addresses three reporting categories: interpretation of data, scientific investigation and evaluation of models, inferences, and experimental results. The reliability of the ACT Aspire Summative Assessment meets Cronbach's internal consistency and validity (ACT Aspire, 2019).

Data Analysis

To address each of the four hypotheses, a 2 x 2 factorial between-groups analysis of variance (ANOVA) was conducted using the Summit Learning Platform (participation versus no participation) and gender (male versus female) as the independent variables. The dependent variables for the four hypotheses were ninth-grade student achievement in mathematics, English, reading, and science, respectively. As is common in educational and sociological studies, the researcher used a two-tailed test with a .05 level of significance to test the null hypotheses.

Summary

Providing teachers with professional development on instructional practices and content delivery through a personalized approach are valued pieces to changing the way educational experiences are delivered to students. In Chapter I I discussed five factors that could help mold instructional practices to focus on student-centered education, along with the theoretical framework, statement of the problem, description of terms, the significance of the study, and the process to accomplish. Summit Personalized Learning offers a mastered approach to systemically structuring classrooms to engage students in learning independently while connecting social and emotional components that address the whole child. In Chapter II I provide a review the related literature.

CHAPTER II

REVIEW OF RELATED LITERATURE

This review of the research provided an examination of the literature related to personalized learning and its effect on student achievement. Five major sections included in this chapter explored the changes in educational delivery through personalized learning. The section *Personalized System of Learning* surveyed the framework built around each student's pace and the approaches to personalized learning. *Habits of Mind* provided the research on 16 skills to build social and personal growth for student success. Next, *Mastery Learning* outlined the process of instructional alignment to influence student achievement. *Schools and Personalized Learning* focused on schools that were using professional development to change the delivery of personalized learning for teachers to become experts at the implementation of the practice. The final section, *Summit Learning Platform*, explained how the program evolved and grew to address the whole child in explicit personalization to advance students beyond secondary education.

Theoretical Framework: Mastery of Learning

The mastery learning model blends elements of personalized learning to allow students to direct their learning environment. All learners progress at their own pace, and students must achieve mastery before moving to the next phase of their learning. Emphasis is placed on intrinsic motivation to prevent failure when learning is difficult (Yu, 2018). In comparison to the conventional or traditional model of learning, research

indicated that a personalized learning approach affects student achievement, regardless of their starting level. Students given a choice in their activities are authentically engaged in their learning. The motivation of those students is the connective piece to the increased achievement of students who are involved in a personalized setting for learning. Students who are instructed using personalized learning progress through essential standards at various times, focusing on content and learning objectives that meet their needs as mastery is gained.

Technology plays a role in personalizing learning for students. Students can learn independently and work at their own pace while teachers support the learning efforts of students individually (Baird et al., 2015). The presence of technology allows teachers to provide one-on-one mentoring to help students reach the goals set for each unit of instruction. Mastery learning theory suggests learning is improved when students receive assessments that identify skills they do not possess and then engage in activities that reinforce the skills and promote mastery (Bloom, 1978). The benefits of mastery learning embedded in the platform of personalized learning may take some time to emerge. Research on both mastery learning and personalized learning indicates that the effects are more favorable after schools implement both concepts fully and simultaneously.

Personalized System of Learning

Personalization encompasses several dimensions, depending on the individual describing the term. Over the past lustrum, consumers have begun to expect personalization in all aspects of their lives after businesses started providing a customer-focused approach. Personalized learning is an approach that blends differentiation, individualization, flexibility, matching interest, and prior experience (Wolf, 2010).

Currently, many everyday societal experiences can be personalized: custom shoes from Nike branded to fit the specifics of design and color, facial recognition to open an iPhone and popular social media apps, and personalized Instagram feeds (Loren, 2018). Personalization to what meets the needs of customers is how businesses are marketing their brands. With this concept being the new normal, the educational system must keep pace in providing quality educational experiences for students who quickly disengage from traditional sit-and-get instruction. Personalization of learning creates a catalyst for educators to engage students in the curriculum they enjoy.

Personalized learning includes five elements. First, the instruction is aligned to standards and curriculum created by teachers to address college and career readiness standards for student success. Second, the instruction is customized to allow students to design their paths of experiences and align these with their interests. Third, the pace of the instruction is varied and focused on the needs of the students, allowing them time to master skills at their own pace. Fourth, data are used from common formative assessments. These assessments inform real-time decisions and provide feedback to students. Based on the results, teachers differentiate in instruction and provide a system of interventions. Lastly, students and parents have real-time access to objectives created by teachers and assessment results to understand the expectation of mastery (Pipkin, 2015). Personalized learning allows the learner to set goals, be reflective, and offer flexible opportunities that place the students at the forefront of their learning. Students have a voice and make choices in how learning is defined best to influence their personalize growth (Friend, Patrick, Schneider, & Vander Ark, 2017). Schools that

cultivate the personalized approach do not focus on test scores; the focus is on students' mastery of learning.

Personalized System of Instruction

During the 20th century, an emphasis was placed on shifting schools from the factory model to innovative, collaborative spaces. Mark Schneiderman explained this definition of personalized learning as to how educators should move forward in preparing their students for the next century (Wolf, 2010). Personalized learning is not new, but what educators expect students to know and be able to do is what should evolve if teachers want to make learning specific to individual students (Wolf, 2010). Models of the professional learning community (PLC) process show how learning is always at the forefront and align with one of the four main questions of a PLC: What do educators want students to learn and be able to do (Eaker, DuFour, DuFour, Many, & Mattos, 2016). When leaders train teachers to think beyond the standards and find the essential components that students need to master, personalization occurs as students start to guide their learning proficiencies.

Leadership development has created a focus on many professional trainings across the country. To train educators on how to provide personalized experiences for students, leaders involved with the Software and Information Industry Association and [Re] Design for Personalized Learning Symposium worked under three assumptions (Wolf, 2010):

- The educational system must be redesigned from mass production to mass customization.
- Educational equity must be based on equal access.

- Personalization can occur without technology but not without tracking the learning of students with immediate access points.

From these assumptions, questions were formulated to determine how to move beyond the factory model of education:

- What does personalization look like from the student-learning perspective?
- How vital are curriculum choice, pace, and flexibility?
- How does the role of the educator change?
- How do administrators provide proper professional development to train teachers to implement personalized learning to meet the needs of the student best? (Wolf, 2010)

Personalized learning takes a structured approach based on each student's needs and learning styles to achieve maximum progression through mastery of skills. According to educators at the 2010 Software and Information Industry Association Symposium, five essential elements emerged from educational leaders: flexible, anytime, everywhere learning; teacher roles redefined and teacher's knowledge expanded through embedded professional development; project-based, authentic learning opportunities; student-driven learning paths; and mastery, competency-based progression or pace (Wolf, 2010). Related literature indicated a growing concern across the country that personalized learning may not be meeting the needs of learning for several underserved groups of students, including students of color, students in poverty, and those who have experienced trauma. This literature strengthens the first of the three assumptions that educational equity is not based on equal access.

Fred Keller's Personalized System of Instruction

A personalized system of instruction to help students learn the material without a teacher solely directing the learning was created. The initial work was done in Brazil in the late 1960s by Fred Keller (Eyre, 2007). Keller worked on psychological and behavioral analyses and outlined five components essential to a personalized system of learning classroom: emphasizing mastery of course material, using proctors, promoting self-pacing, stressing the written word, and using lectures and demonstrations primarily for motivational purposes (Eyre, 2007). The material for the course was divided into small units with each unit requiring students to reach proficiency by taking a test. If the students did not reach the desired competence, they could retest as many times as they needed to demonstrate understanding. Credit for the course was awarded at the time of mastery, and students were not penalized for continued attempts. The theory that Keller created fostered test-taking attempts and did not place focus on punitive actions for incorrect answers or failed attempts. Student self-pacing allowed moving through the course at the desired rate and design what students needed in real-time. The initial course Keller designed allowed students to work through the courses until they passed all the unit tests, removing the barrier of a traditional semester (Eyre, 2007). Teachers in the personalized system of learning became facilitators that held classroom meetings to clarify concepts and to motivate students' engagement in learning.

Habits of Mind

As the term *personalized learning* is currently defined, the concept still lies under an umbrella term that aims to fulfill a curricular requirement of mastering essential skills. The Habits of Mind, created by Bena Kallick and Art Costa, promoted a transformative

model of how to shift students' thoughts to foster a mindset of growth, produce positive change, and facilitate facing one's fears. Personalized learning and the dispositions necessary to bring this model to life inspired the Habits of Mind (Kallick & Zmuda, 2017b). Personalized learning framed by the Habits of Mind was defined as "progressive student-driven models of education that empower them to pursue aspirations, investigate problems, design solutions, share curiosities, and create performances" (Kallick & Zmuda, 2017b, p. 2). This definition used four attributes to learning styles: voice, co-creation, social construction, and self-discovery. Students' voice involves the students' ability to captain their learning by commanding the *what* and *how* in the early stages of the process. Co-creation allows students to work with their teachers to develop rigor, challenges, and how assignments will be assessed to outline a plan of action to measure their achievement. Social construction combines social skills and collaboration to create a product that enhances the relationships students build with each other and their teachers. Self-discovery requires students to reflect on their skill sets and develop their ideas (Kallick & Zmuda, 2017b). The four attributes of personalized learning are derived from habit, something done automatically without any self-awareness. The Habits of Mind was created as 16 soft skills or cognitive skills that allowed students, teachers, and stakeholders to be more thoughtful about decisions and more aware of skills that affected their successes. Of the 16 habits, 12 were initially developed by Costa in 1991 (Costa, 2001). These habits became a training ground for students to think beyond a problem and create their personalized solution. To foster the approach of holistic learning for the whole child, a shift in thinking has to occur.

With Habits of Mind, four defined shifts in student thinking embody personalized learning: voice, co-creation, social construction, and self-discovery (Kallick & Zmuda, 2017a). First, learning is teacher-led and student-directed. Although the basis for robust instructional leadership is teacher-created curriculum, learning and mastery of essential skills become relevant when students are a respected and valued participant. Students are given ownership of tasks, projects, and assessments to promote self-management and a commitment towards desired results. Second, students build disciplinary knowledge and cross-disciplinary skills. Concrete skills are necessary, but a skill set to apply knowledge must be provided to allow students to thrive in contemporary society. One example includes allowing students to use real-world application during their learning instead of requiring a specific project aimed at the same goal for each student. Third, student learning requires disciplinary knowledge and dispositional thinking. Disciplinary knowledge and dispositional thinking are not competitive descriptors but work together. Curriculum, instruction, and assessment should align and allow students to think critically while allowing room for creative problem-solving to demonstrate mastery. Fourth, standards can offer the freedom to create. Teachers and students should work together to develop competencies to measure progress (Kallick & Zmuda, 2017b). The responsibility of transforming the traditional skills in teaching to personalize learning experiences should not be placed primarily on the teacher completing this work. The alignment of personalized learning with Habits of Mind enhances the traditional interactions of teachers and students to give creativity and voice to students.

Personalized learning looks, sounds, and feels different depending on the instructor. Regardless of the instructional method, Kallick and Zmuda (2017b) identified

four psychological attributes that positively affect student achievement help schools blend the growth of the Habits of Mind with personalized learning. First, they found that educators must find ways to add relevance for students. Students engage when they find the work has an ultimate purpose rather than completed for a grade. Second, Kallick and Zmuda (2017b) noted that the growth mindset is crucial to students believing they can improve. Students must develop the use of some of these habits by remaining open to learning and thinking with flexibility. Third, students must have self-efficacy. Self-efficacy allows students to manage their learning. Teachers provide learning strategies, but students use their motivation strategies to self-monitor, assess, and reflect on reaching goals. Fourth, they contended that a sense of belonging must be present for students (a mentoring component to the Summit Learning Platform) to find their places in the community of the class. Establishing a culture for learning allows the students to develop social skills and empathy to work towards a common goal of achievement.

Personalized learning can be a driving force for both students and teachers to transform the conventional or traditional classroom experience. If teachers do not commit to the cultural change using intentional Habits of Mind, they risk empowering students with the ability to solve complex problems and to be confident beyond the school walls (Vollrath, 2019). Commitment to integrating the Habits of Mind becomes the impetus to move toward transforming the culture. Using the Habits of Mind connects learning to build social skills, develop personal growth abilities, and strengthen the voice of the student during interactions with others (Myers & Berkowicz, 2018). Education is in a revolving series of change and innovation, but the four attributes of personalized learning in collaboration with the Habits of Mind help engage and energize student learning.

Mastery Learning

The mastery learning theory informs the processes of personalized learning systems. Much of the philosophy, policy, and practice witnessed in today's educational realm stems from Benjamin Bloom and his contribution to methods of instruction (Krathwohl, 2002). Bloom created a theory that all students can learn and master any skill, given the right circumstances (Guskey, 2007). However, some teachers struggle to make instruction relevant and appropriate for all students (Guskey, 2001). If improving the quality of instruction yields higher student achievement, mastery learning might be a way for teachers to provide higher quality education and specific instruction to provide practical solutions for learning and increased academic performance.

Bloom is not the first researcher to make the connection between mastery of learning and student feedback. Harvard University Professor John B. Carroll inspired Bloom's work. Carroll (1963) challenged the comparison of high and low aptitudes of students. He argued against the traditional notion that student aptitude was the level students could learn. Children were placed in two categories with this theory—good learners with high aptitudes or weak learners with low aptitudes (Carroll, 1963). The comparison Carroll used was based on his theory that aptitude was more accurately reflected as a learning rate; all children can learn but at a different rate of time. He believed that if each child was allowed the time needed to learn a skill, he or she would meet the desired achievement level. Through his work, Carroll (1963) developed an equation to show the degree of learning based on perseverance, the opportunity to learn versus learning rate, the quality of instruction, and the ability to understand the instruction. From Carroll's study, Bloom developed his theory of mastery learning

around students being given the necessary time and appropriate learning conditions (Rintaningrum, 2018). His work was the start of the concept of mastery learning that continues to be discussed and reviewed.

As Bloom studied further, he outlined two main points of the mastery learning theory. He first theorized that the history of any learner could be described in terms of cognitive entry behaviors and affective entry characteristics (Bloom, 1978). These two entries intersected with the four elements that determine the quality of instruction, which include cues, participation, reinforcement, and feedback/correctives. Bloom suggested that differences in the cognitive entry behaviors of students accounted for 50% of the variation in achievement, and affective entry characteristics accounted for 25%. Alone, entry behaviors differed, yet in combination, these accounted for 65% of the variation in achievement. With the addition of quality instruction, the combination of cognitive entry behaviors, affective entry characteristics, and quality instruction increased the achievement percentage to as much as 90% (Guskey, 2010). The development of the term mastery learning took some planning and troubleshooting for Bloom. He started with observations that most teachers had a very traditional approach to teaching concepts to students. First, he observed teachers, and then divided the material, used a unit planner to instruct, tested students, and ranked the students based on their scores. The test signified the end of the unit and was the only time students had to demonstrate what they learned from the unit (Guskey, 2010). Through this process, Bloom developed a new process that used a system of feedback and correctives to prescribe the best instructional strategies for student achievement. He believed concepts should be organized into smaller learning units with formative assessments to check for understanding throughout the unit. The

feedback portion of his process was used to diagnose individual learning difficulties, and the corrective portion was used to prescribe specific remediation procedures for students. The original language for his theory used the phrase *learning for mastery*; he later changed the name to *mastery learning theory*.

The process of mastery learning was designed to be flexible by allowing teachers to have autonomy but also to be strategic by creating the best learning environment for all students to succeed. The process begins with teachers creating units of instruction that take two to three weeks in length. From the instruction, an assessment is administered, but this assessment does not end the unit. The purpose of this specific assessment is to give information or feedback to students on their learning or areas that need improvement or extension (Hussain & Suleman, 2016)). Bloom (1968) suggested the name of this assessment as a *formative assessment* to inform or provide information. Once the students complete the formative assessment, the teacher gives explicit feedback to aid students in correcting their difficulties in learning the material within the unit. The feedback can vary and include suggestions of additional practice, study guides, or group activities. One of the next steps is the most important during the process Bloom created. Once the corrective activities have been completed, a second assessment is taken. This assessment is called the *parallel formative assessment* and has two distinct purposes: to confirm that the prescribed correctives allow students to address their learning problems and to give students another opportunity to see success. The combination of instructional units and assessments to check for understanding allow students to experience learning environments that foster the culture of mastery learning.

Throughout the past 20 years, two elements have evolved into pillars of mastery learning: the feedback, corrective, and enrichment process and the congruence among instructional components or alignment. The first key component in mastery learning is the feedback, corrective, and enrichment process. From the mastery learning perspective, teachers should offer students feedback that is diagnostic and prescriptive. Bloom (1968) outlined three feedback essentials used in the diagnostic and prescriptive manner.

- Feedback should reinforce the essential components in each unit of instruction.
- Feedback should identify what each student learned well.
- Feedback should describe what skills or concepts students need to develop further.

Feedback cannot be the only source of instructional delivery to keep the process intact. Teachers must follow up with corrective activities that support the students' deficiencies to deliver qualitative differences from the original method of delivery for instruction. According to Bloom, the process of mastery learning involves creating individualized learning experiences for students. The process of feedback, correctives, and enrichment creates a favorable learning environment with high-quality instruction.

The second pillar of mastery learning is congruence among instructional components. Teaching and learning have three identified components according to Bloom (1968):

- Student learning goals and objectives should be clearly defined.
- The instruction that followed prepared students who were competent in their learning.

- The feedback and corrective component must be implemented throughout the entirety of the process to ensure instruction is appropriate and specific.

This last component is associated with the mentoring and monitoring of the Summit Learning Platform. The congruence among instructional components requires teachers to narrow down the essential skills, build common assessments that measure the central ideas of the content, and evaluate the alignment of the curriculum.

As teaching and learning progress, new concepts and refinements of the processes of mastery learning continue to evolve. One of those processes includes progress monitoring through formative assessments. These assessments are brief but measure the most poignant learning goals from an instructional unit (Kurt, 2019). Formative assessments vary in form, but the focus is to gather evidence of student mastery. A second process is the use of enrichment or extension activities. Extension or enrichment activities provide learning that is not corrective but extends the learning and provides increased rigor for students who could move beyond the mastered skill.

New York Public Schools participated in learning that focused on mastery learning. As Bloom determined in his research on mastery learning, the Mastery Collaborative platform shared similarities with proficiency- and competency-based learning. The collaborative bridges a strong culturally-responsive focus with varied approaches to learning that deepen the learning experiences for students (Harper, 2019). The three practices that were derived from this collaborative were transparency in grading, changing in power dynamics, and a positive learning identity (Baucke, 2017). Promoting equity in practices is the goal for mastery learning and provides all students

benefit from the continual process of bridging unique teaching skills and student voice to each classroom.

Schools and Personalized Learning

The rise of personalized learning offers freedom for schools to differentiate and provide new ways of learning versus traditional classroom settings. In the past, a traditional school had single rows of desks with one teacher delivering content (Kamenetz, 2018). Personalized environments offer a different approach; learners use technology as a catalyst to research new techniques and set their own goals, working independently while the teacher facilitates the learning. Schools using personalized learning are redefining how students learn and master skills. Critics view personalized learning as a ploy to replace teachers with technology (Bishop, 2019). Supporters of personalized learning are seeing the effects of competency-based programs that allow students to navigate their learning.

Many schools have redesigned for authentic implementation of personalized learning practices. At Waukesha STEM Academy in Wisconsin, students own their learning (Rickabaugh, 2017). The school focuses on the vision of personalized learning where students are nurtured, not just prepared to be proficient. Students partner with educators with a purpose and create competency-based programs to show the progression of mastery. The programs focus on essential skills for learning. Waukesha STEM uses a combination of flexible learning environments to offer students choices in the way they set up their day. Learning is more personalized and comes with fewer assignments that are designed to fit one style of learner.

Many components exist for schools who desire to offer students an innovative approach to mastery learning. A typical day at Waukesha STEM Academy begins with students tracking their goals for the day. Students use advisory time to reflect upon their learning. Science, Technology, Engineering, and Mathematics (STEAM) time allows students to create projects collaboratively. Students are in charge of each component of their day, while traditional classrooms rely on teachers to facilitate students through each part of their day (Mason, 2018). The school uses this approach of personalization to help learners understand what, why, and how they should learn. The goal is for students to partner with students with educators who advocate for the deep learning that is connected to the student's interests and needs. Personalization of learning is not centered around one set of schools, such as schools that offer the Summit Platform.

Consistent with the approach that Waukesha uses, the four elements of student engagement personalized learning will help students design how they will plan for their future successes during the academic school year. The four elements include autonomy, competence, relatedness, and relevancy (Ryan & Deci, 2000). Ryan and Deci (2000) defined autonomy in student learning as the power to decide what skills need to be mastered and the process of proficiency. They described competence as students completing a task using the appropriate skill set. Relatedness was defined as the development of student relationships with teachers and classmates capable of helping them in their quest to achieve. Relevance refers to students who own their learning and believe in the purpose of the work they create. Elements of student engagement blend technology with time spent to mentor students individually. When schools combine student engagement with personalized learning, they see true learning for students. One

critique schools are receiving from personalized learning is the ability to check off the four components with one program instead of planning a learning experience that deepens learning through technology (Lurye, 2018). Students use technology as a resource, not the primary tool for learning.

Promoting autonomy can be difficult if teachers lack an understanding of how to help their students develop their thinking and learning. One of the ways to foster autonomy is to provide choice; choice inspires autonomy (Usher, 2019). In any given classroom, Stefanou, Perencench, DeCinto, and Turner (2004) noted that teachers could offer three types of choices: organizational, procedural, and cognitive. First, they proposed that organizational autonomy allows students a role in creating social contracts for the classroom and creating rubrics for assessments. Second, procedural autonomy, they observed, gives students choices about how they present assignments. An example of procedural autonomy would include using a specific type of media that explains how the students mastered a skill during the unit or essential standard. Third, they argued that cognitive autonomy encourages student ownership of their learning. This ownership creates opportunities for students to justify, defend, or explain their thinking; generate solutions to their problems; and evaluate each other based on set criteria. (Ferlazzo, 2017). The three approaches used to engage students to develop intrinsic motivation to learn while not being facilitated solely by an instructor. Teachers who plan personalized experiences understand that allowing students' autonomy has the potential to improve their learning, but their first job to engage students in the process of learning.

As schools become more innovative in their approaches to personalized learning, training for teachers is an expenditure that most school district leaders do not invest

funds. Ottawa Area Intermediate School District leaders took a different approach to create instructional skillsets for personalized learning by providing teachers with targeted training to prepare educators to meet the needs of their students (Passatta et al., 2017). In 2012, the district developed Future PREP'd as a series of learning experiences for educators that immersed them in the basics of projects-based learning, thinking by design, and the development of career readiness skills. The design of the professional development was an intense application to increase awareness and proficiency for teachers to use personalized learning strategies that enhance student learning experiences (Passatta et al., 2017). Once educators were accepted into the program, they spent six months in training: 60 hours for elementary teachers and 120 for secondary teachers. The program was not limited to teachers within the one school district; teachers from 13 other districts that surrounded the county were invited to apply. The training provided teachers with the opportunity to apply the skills gained on students from the various school, including those not in their district. This professional learning experience allowed teachers time to practice the instructional strategies learned and perfect them before returning to implement the practices in their classrooms.

Unique aspects to the professional learning that are not offered with traditional professional development are the reversal of the teacher as the learner. Pasatta et al. (2017) revealed that educators spend one-third of their time experiencing personalized learning as students. An example of this approach is in the 2016 training cohort and their development of a collaboration project with the Grand Rapids Art Museum (Dietzer, 2017). The museum administrators wanted to redesign their teacher collaboration space to be more suitable for K-12 educators. This experience was not limited to one session

but was a succession of events that helped teachers anticipate obstacles when designing lessons for students that would require active thinking. Educators in the cohort were allowed to practice new skills with students outside of their school districts. This practice exposed the educators to experiences that connected learning to the real world outside of the four walls of the classroom. A key component to work done at FuturePREP'd was the reflection added by the teacher. At the commencement of the training, days were set aside expressly for reflections by the educators to connect the learning to a problem of practice they had identified in the teachers' toolkits. The specific and targeted training that educators received connected the real-world application with personalized learning. Once they made those connections, they were able to use relevant experiences to strengthen the learning for the students and provide experiences that mirrored the learning done through facilitated instruction.

Commonalities within the schools that are preparing for personalized learning with a focus on the instruction of students exist. One of those is the skill set of the teacher. As personalized learning continues to evolve, challenges such as implementing a sound curriculum at a level that will cultivate success for learners are concerns for educators. According to Education Element, the number one challenge for seamless implementation of personalized learning was getting others to commit to the process (Jenkins & Kelly, 2016). Teachers must possess a multi-faceted instructional capacity to maintain learning that is targeted, effective, and reflective of communication that will engage all students.

Summit Learning Platform

One of the first projects that the Chan Zuckerberg Initiative supports is Summit Public Schools. Funding requirements for the implementation of personalized learning systems are more extensive than for traditional instructional practices (Petersen, 2018). In 2015, Mark Zuckerberg and Priscilla Chan created a new philanthropic organization that focused on creating grants, merging engineering with investing, and assessing policy and advocacy. The initiatives targeted education, justice and opportunity, science, and giving in the Bay area of California. Empowering teachers and leaders by being equipped to meet the needs of the whole child and their development physically, socially, and emotionally was the primary goal of the organization (Tate, 2019). From the student perspective, the Chan Zuckerberg aimed to provide every child a personalized educational atmosphere that can positively affect the student's life through premier research and the science of learning. Through the Chan Zuckerberg Initiative, they designed the projects to focus on four student milestones: readiness for kindergarten, literacy fluency in third grade, transitions that are seamless to high school, and success beyond the secondary level (Herold, 2016). Tailoring education to meet the specific needs of students allows all students to be successful. These tenets are the basis of the work of the Chan Zuckerberg Initiative.

Over the years, technology has played a significant role in education. Many media outlets have emphasized screen time in front of a computer at the exclusion of personal relationships (Cleaver, 2019). To Shelton (2017), technology has become the focus instead of the aspects of personalized learning that concentrate on academic measures. This emphasis on technology clashed with the emphasis on a combination of technology

and personalized learning alluded by the Chan Zuckerberg Initiative. The interpretation of personalized learning was based on the concept that students learn through their technology. The organization's members responded to the emphasis on technology alone by promoting personalized learning that fosters meaningful relationships between people—both teachers and students and students with their peers while decreasing barriers to academic achievement, along with effective use of technology.

Even though technology is a part of almost every student's experience, the Chan Zuckerman group is trying to foster personalized learning, primarily through teacher training. Administrators of Summit Public Schools opened the doors in 2003 with the vision to focus their teacher training on understanding individual student growth and the development of strong mentor relationships. At its inception, Summit Public Schools' leaders wanted goal-setting to be at the forefront of the learning experience for students. McNeil (2017) noted that the first year of student tracking included the creation of personalized learning plans in Microsoft Word. McNeil added that in the next year, school personnel used Google Apps for Education as a tool to track in Google Docs. Eight years into the project witnessed the first blended learning approach created in 2011 with Khan Academy to offer a new system of learning for students to use technology as a platform for online resources. With the rise of 1:1 technology, supporters of Summit Public Schools began their 1:1 Chromebook program and created the first generation of the personalized learning platform (Summit Learning, 2018). Further, after several news stories of successful students beyond graduation, the creators of Summit Public Schools collaborated with the founder of Facebook to improve and offer the full platform to schools across the country

The platform was designed to help students track their progress towards short- and long-term goals, learn at their own pace, and make an application to content in real-world scenarios (Summit Learning, 2018). However, to be successful with the platform, students need to effectively navigate the components of the platform and have strategic mentorships with their teachers. From their perspective, mentoring, combined with the effective use of technology, elevates student success. Summit Learning provides four ways for students to demonstrate proficiency. The four ways include cognitive skills, content knowledge, habits of success, and a sense of purpose (Jacobs, 2017b). First, Jacobs (2017b) noted that cognitive skills equip students with essential and transferable lifelong skills to navigate college and careers. Second, content knowledge helps students understand academic subjects more deeply than a web search can provide. Students need a broad content knowledge base in order to put cognitive skills to work.

Along with the four ways to demonstrate proficiency, Summit Public Schools developers founded the three pillars of success through Summit Learning. A student's time is organized to represent the three main pillars, which may vary within each Summit Learning school. However, a general student schedule includes a blend of one-on-one mentoring to understand and pursue personal goals, project-based learning to build cognitive skills, and individualized pathways to master content (Fitzgerald, 2016). First, mentoring is done weekly during a meeting with a teacher mentor who has access to the platform of each student. Students work with their mentors to set short- and long-term goals and receive feedback on their progress through the platform (Chen, 2018). Teachers facilitate discussions in the classroom, coach students in applying their cognitive skills, and provide feedback. Second, project-based learning allows students to apply the

content they have learned to real-world projects, developing essential and transferable lifelong skills. Projects in the platform are not traditional, teacher-directed projects. Real-world projects are a primary component of the Summit Learning experience. Projects account for 70% of the grade in each course. Each course devotes at least 180 minutes per week to project time, where students are immersed in real-world scenarios (McNeil, 2017). Students spend the majority of their time working on projects with their teachers and classmates that develop cognitive skills. Third, personalized learning or student-directed learning allows students to make their way through a range of resources (Summit Learning, 2018). Students can choose how they want to learn content, focusing on their personal needs and preferences. If students come to a component they do not cognitively understand, the teacher steps in to provide 1:1 instruction or uses data from the platform to teach a whole group lesson. The platform allows the teacher and student autonomy in the delivery of instruction.

In 2017, the Summit Public School leaders released a report on designing aligned school models. This eight-step framework described their work and learning over the past 10 years that navigated the *how* of school improvement rather than the *what* (Swallow, 2018). The process began with articulating local and global realities and determining how these affected the community served. Next, school teams engaged in expressing community values. School leaders analyzed what the community valued and the assumptions the community had regarding learners. After addressing the local and global realities, the school defined the purpose of education that aligned the values of the community with the goals of the school. Schools began to determine measurable outcomes and created SMART goals. The fifth action identified evidence-based

principles. These principles focused on the outcome and purpose defined in the school constituents' views on education (Swallow, 2018) Leaders made decisions about the curriculum, teacher roles, and learner roles concerning professional development and assessment. For the final two components, action teams engaged in creating a handbook and assessing the alignment of the school model (Swallow, 2018). Sustainable models of instruction are essential structural components when building school systems. The framework created through Summit Public Schools provided clarity to the challenges with education and a systemic approach to align models of instruction for focused professional development and school improvement efforts.

Summary

The review of literature suggests that personalized systems of learning, Habits of Mind, mastery learning, and the Summit Learning Platform have affected the learning outcomes for students over time. The focus of this study was to determine if the Summit Learning Platform had an effect on student achievement. The literature review indicated that various components of each pillar of mastery learning affect students' learning and mastery of skills. Chapter III provides the methodology, research design, sample, instrumentation, data collection, analytic methods, and limitations.

CHAPTER III

METHODOLOGY

The review of the literature indicated a trend in using a systematic approach to personalized learning, with a focus on mastery learning to increase student engagement and achievement. Using a personalized learning model creates an environment where students are at the center of their engagement and design of learning. The teacher's role is to help students develop a grounded knowledge base to explore and develop skills in authentic pathways that lead to learning. Schools using the Summit Learning Platform have seen the connection to personalized learning and increased student engagement and achievement, as noted in a case study at Handley Middle School, a rural public middle school in Roanoke, Alabama (Fagella, 2018). The use of 1:1 technology, job-embedded professional development on personalizing learning, and explicit mentoring of students helped decrease discipline infractions, increase student engagement, and increase overall ACT Aspire Summative Assessment achievement (Summit Learning, 2018). The purpose of this study was to determine the effects by gender between students participating in the Summit Learning Platform program versus no participation in the program on achievement as measured by the ACT Aspire Summative Assessment for ninth-grade students in four Arkansas schools. The hypotheses used in this study were as follows:

1. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the

program on mathematics achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.

2. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on English achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.
3. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on reading achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.
4. No significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on science achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas.

In this chapter, the researcher explained the research design, the process for obtaining a sample and description of the sample, the instrumentation used to measure the achievement of students, the data collections, and the statistical analysis process. The limitations of this study were also included in this chapter.

Research Design

A quantitative, causal-comparative strategy was used for this study. The researcher used a 2 x 2 factorial between-groups design to analyze each hypothesis. This design was used to analyze the interaction effect of the four groups (males participating in the Summit Learning Platform, females participating in the Summit Learning Platform,

males not participating in the Summit Learning Platform, and females not participating in the Summit Learning Platform) on a dependent variable (academic achievement) (Gay, Mills, & Airasian, 2012). Additionally, this design allowed the researcher to analyze the main effects of gender and participation in the Summit Learning Platform separately. For all four hypotheses, the independent variables were gender (male versus female) and participation in the Summit Learning Platform (participation versus no participation). The dependent variable for Hypothesis 1 was student achievement measured by the 2019 ACT Aspire Summative Assessment in mathematics. The dependent variable for Hypothesis 2 was student achievement measured by the 2019 ACT Aspire Summative Assessment in English. The dependent variable for Hypothesis 3 was student achievement measured by the 2019 ACT Aspire Summative Assessment in reading. The dependent variable for Hypothesis 4 was student achievement measured by the 2019 ACT Aspire Summative Assessment in science.

Sample

The sample in this study consisted of 120 ninth-grade students' scores from the 2019 ACT Aspire Summative Assessment in mathematics, English, reading, and science in four high schools in Arkansas. Of the 120 students' scores, 60 were from students participating in the Summit Learning Platform and 60 from students not participating with an equal number of males or females in each group. The four schools were selected based on similar needs for innovative strategies to improve academic achievement through the personalization of learning. Schools in Arkansas are assigned a letter grade based on the Every Student Succeeds Act. The letter grade combines four categories: (a) academic achievement, (b) weighted growth, (c) school quality, and (d) graduation rate.

Weighted achievement is calculated at fifteen percent of the overall ESSA index score for high schools. The weighted achievement is based on scores from students on the ACT Summative Assessment. Each school selected in the study had 40% or more of students that qualified for free or reduced lunches. Two schools in this study had implemented the Summit Learning Platform program 2 years before the sample data collection. The total accessible population from which each sample was drawn is described in Table 1 below.

Table 1

School Demographics from the Accessible Population

	School and Participation			
	A (part.)	B (no part.)	C (no part.)	D (part.)
Total Student *N*	930	598	1,007	500
Grade 9 Tested Student *N*	230	163	322	133
ESSA Letter Grade	D	F	B	D
Male	48.0%	51.0%	54.0%	44.0%
Female	52.0%	48.0%	46.0%	56.0%
Free/Reduced Lunch	73.0%	73.0%	44.8%	48.0%
Race				
American Indian/Alaskan	0.4%	0.2%	0.5%	0.0%
Asian	1.1%	0.0%	0.4%	0.4%
Black	42.4%	46.0%	3.4%	34.8%
Hawaiian	0.3%	0.0%	0.0%	0.0%
Hispanic	19.7%	36.6%	9.9%	2.4%
White	33.1%	17.2%	79.3%	62.0%
2+ Races	3.0%	0.0%	6.5%	0.4%

A stratified random sampling technique was used for this study. First, the four schools were stratified by participation status in the Summit Learning Platform program. Second, the ninth-grade scores were stratified by gender. Finally, 60 males' and 60 females' scores were randomly selected from each school to comprise the four groups for each hypothesis: 30 males participating in the Summit Learning Platform, 30 females participating in the Summit Learning Platform, 30 males not participating in the Summit Learning Platform, and 30 females not participating in the Summit Learning Platform. Therefore, each sample consisted of 120 scores from ninth-grade students in four Arkansas schools for each of the four subject areas, which created the dependent variables for this study. All scores sampled for this study included scores from students who had reportable scores in all four academic areas (mathematics, English, reading, and science) and who required no accommodations or modifications.

Instrumentation

In the spring of 2015, the Arkansas Department of Education adopted the ACT Aspire Summative Assessment (Arkansas Department of Education, 2018). The ACT Aspire Summative Assessment measures readiness in mathematics, English, reading, and science for Grades 3 through 10 (Arkansas Department of Education, 2018). The writing section of the ACT Aspire Summative Assessment consists of one writing task that is scored, in most cases, by a single rater. ACT officials believe that the overall writing scale scores should not be used for high-stakes decisions, including school accountability, and that the overall English Language Arts score is a more reliable measure that is appropriate for such interpretations (Arkansas Department of Education, 2018).

For this study, the scores from the ACT Aspire Summative Assessment represented student achievement and progress toward college and career readiness (ACT Aspire, 2019). According to the Mattern, Radunzel, and Steedle (2018), the ACT Aspire Summative Assessment provides alignment and the capability to predict outcomes on the ACT, the most used college entrance exam. Performance level descriptors are used to determine the knowledge, skills, and practice that a student maintains at each grade level. These performance level descriptors set the criteria for proficiency in each area assessed and determine threshold expectations that demonstrate knowledge and skills to perform in one of four levels: In Need of Support, Close, Ready, and Exceeding.

The mathematics exam has five reporting categories for the ninth-grade assessment: number and quantity, algebra, functions, geometry, and statistics and probability. The English exam includes three reporting categories: production of writing, conventions of standard English, and knowledge of the language, with nearly one-third of the assessment composed of the upper-level depth of knowledge questions. The reading exam includes three reporting categories: key ideas and details, craft and structure, and integration of knowledge and ideas with nearly 50% of the test composed of the upper-level depth of knowledge questions. The science exam has three reporting categories: interpretation of data, scientific investigations and evaluation of models, and inferences and experimental results with 40% of the test composed of the upper-level depth of knowledge questions (ACT Aspire, 2019). Table 2 displays additional ACT Aspire Summative Assessment Information.

Table 2

ACT Aspire Summative Assessment Information

	ACT Aspire Summative Assessment Information			
	Scales	SEM/Scale Score	Scale Score Ranges	Minutes to Test
Mathematics	.87-.90	2.93	400-460	75
English	.90-.91	3.32	400-456	45
Reading	.87-.88	2.73	400-442	60
Science	.86-.89	3.02	400-449	60

The assessment passes validity for construct and criterion-related measures, and the internal consistency of the subsections measured by Cronbach's Alpha fall in acceptable ranges (ACT Aspire, 2019).

Data Collection Procedures

After approval by the Institutional Review Board, permission was obtained from the superintendents of all four school districts used in this study. The superintendent of each participating district was sent an email with a letter attached explaining the study and requesting permission to use the data from the 2019 ACT Aspire Summative Assessment. An electronic reply to the request was documentation of permission granted. Student scale scores for mathematics, English, reading, and science for the 2019 ACT Aspire Summative Assessment were collected for analysis. The participating districts provided student data in Microsoft Excel 2016 spreadsheets and sent the data via email. Data from Schools A, B, C, and D were downloaded into a Microsoft Excel document

where student names were replaced with codes, and all other personally identifiable student information was deleted. The information was stored in a secured location.

Analytical Methods

The researcher used *IBM Statistical Packages for the Social Sciences (SPSS) Version 25* to analyze the data for this study. Data collected for the four hypotheses were coded according to school, participation in the Summit Learning Platform, and gender. The following codes were used for each school: the Summit Learning Platform (1 = participation, 2 = no participation), gender (1 = male, 2 = female). The four hypotheses were then analyzed using the following statistical analysis.

For testing Hypotheses 1-4, four 2 x 2 factorial between-groups ANOVAs were used. The independent variables for each hypothesis included participation in the Summit Learning Platform (participation versus no participation) and gender (male versus female). The dependent variables for the four hypotheses were mathematics, English, reading, and science achievement, respectively, measured by the 2019 ACT Aspire Summative Assessment for the ninth-grade students. To test the four hypotheses, a two-tailed test with a .05 level of significance was used.

Limitations

Limitations are inevitable in every study and should be acknowledged to evaluate each study's internal and external validity. Acknowledging these limitations will assist the reader in processing the findings in Chapter IV and the implications and recommendations of Chapter V. First, inconsistency in the training of the teachers who implemented the Summit Learning Platform could affect the data. In addition, if teachers did not implement the training with fidelity across each subject area, the data could be

influenced. The teachers attended a full week of training in the summer before the implementation of the program in the fall. The follow-up training continued in October and February. For students to demonstrate success, they were to spend time in each of the phases of the platform and be provided with 1:1 mentor time with a trained teacher to guide them toward their goals. If the teacher did not internalize the professional training and comprehend the guidelines and goals of the platform, the delivery of instruction could revert to direct/lecture-style teaching using the technology component as nonengaged screen time.

Second, no succinct definition of personalized learning exists in the literature. Further, a shortage of evidence exists that explains which instructional components of personalized learning yields the most significant benefit on student achievement (Baird et al., 2017). The number of definitions of personalized learning creates confusion and causes a gap between how schools interpret personalized learning and how experts in the field interpret the concept. In addition, uncertainty exists regarding the specific component of personalized learning that allows students to master skills or concepts at a higher percentage.

Third, current research is vague on the Summit Learning Platform regarding how the platform affects students' achievement. Summit Learning conducts case studies on schools that use the platform across the country, comparing the schools with themselves year to year. Because the participating schools are not compared to comparable schools with similar demographics who do not participate in the program, the data are limited in their generalizability. This constraint limits the ability to prove if the platform does have a positive impact on student achievement.

Fourth, the content taught in each school district may not align with the ACT Aspire Summative Assessment. ACT Aspire (2019) claimed that the ACT Aspire Summative Assessment is aligned with the Arkansas State Standards. However, because of test confidentiality, little verifiable evidence supports this claim. The educators who create the Arkansas State Standards use the standards to define and guide the content that is taught in Arkansas school districts. However, each school district determines the essential standards to be taught at each grade level and content area, which may cause the four districts not to teach all the same essential standards at each grade level and content area.

Fifth, due to the design of the study, a causal-comparative strategy, the researcher was not able to manipulate one or more of the independent variables. Because the researcher could not manipulate the independent variables, the possibility that the groups were not equivalent might threaten internal validity for the study.

Regardless of these limitations, the results of the study will still provide the reader with insight into whether the use of the Summit Learning Platform as a personalized learning platform increases student achievement. Even though these limitations existed, the results of this study could supply information to school districts and inform future studies on personalized learning.

Summary

Schools fall into periods of an implementation gap when new curricular programs are introduced to students and staff. The limitations of this study provide the readers with a possible rationale as to why some schools stay within the implementation gap longer that others due to lack of professional development and limited literature on the program.

Although the state of Arkansas offers standards for content taught in Grades K-12, each school system identifies the essential standards that may not align with what is assessed from the ACT Aspire Summative Assessment. In Chapter IV I provide an overview of the analytical methods used for this study and share the analysis of the results for Hypotheses 1-4.

CHAPTER IV

RESULTS

The purpose of this study was to determine the effects by gender between students participating in the Summit Learning Platform versus no participation in the program on academic achievement for ninth-grade students in four schools in Arkansas as measured by the ACT Aspire Summative Assessment. The independent variables in this study were participation in the Summit Learning Platform and gender. The dependent variables for Hypotheses 1-4 were mathematics, English, reading, and science achievement, respectively, measured by the 2019 ACT Aspire Summative Assessment.

Analytical Methods

The *IBM Statistical Packages for the Social Science (SPSS) Version 25* was used to analyze the data from this study. Data collected for the four hypotheses were coded according to school, participation in Summit Learning Platform, and gender. The following codes were used for each school: Summit Learning Platform (1 = participation, 2 = no participation), gender (1 = male, 2 = female). Each of the four hypotheses was then analyzed using four 2 x 2 factorial between-groups ANOVAs. The samples' scores were collected and coded by gender and participation in the Summit Learning Platform. Assumptions were checked before running the statistical test to ensure that the proper test was selected for the analysis.

Hypothesis 1

Hypothesis 1 stated that no significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on mathematics achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Data were screened for entry errors and missing values, with none found. The assumptions for factorial ANOVA, including independent observations, homogeneity of variance, outliers, and normal distribution of the dependent variables for each group were checked. Histograms were used to check normality of gender and participation in the Summit Learning Platform with the ACT Aspire Scale Scores for mathematics. Table 3 displays the group means and standard deviations.

Table 3

Means, Standard Deviations, and Number for ACT Aspire Scale Scores on Mathematics Achievement by the Summit Learning Platform Participation and Gender

Gender	Summit Learning Platform Part.	*M*	*SD*	*N*
Male	Participation	420.00	7.01	30
Female	Participation	423.43	5.82	30
	Total	421.72	6.62	60
Male	No Participation	424.47	8.25	30
Female	No Participation	425.37	8.12	30
	Total	424.92	8.13	60
Total	Male	422.23	7.92	60
	Female	424.40	7.07	60
	Total	423.32	7.55	120

To test the assumptions of normality, histograms, as well as Shapiro-Wilk statistics, were examined for each group across the two genders on mathematics achievement scores. Although histograms for the groups appeared normal, results for the ANOVA was deemed appropriate as this is considered robust to mild violations of the assumption of normality (Field, 2005; Leech, Barrett, & Morgan, 2011). Levene's test of equality of variances was conducted within the ANOVA, and the test indicated that homogeneity of variances across the groups could be assumed, $F(3, 116) = 1.72$, $p = .166$; therefore, this assumption was met. A 2 x 2 factorial between-groups ANOVA was performed to test the interaction effect between participation in the Summit Learning Platform and gender on the ACT Aspire Summative Assessment for mathematics. The results of the ANOVA are displayed in Table 4.

Table 4

Factorial Analysis of Variance Results for ACT Aspire Mathematics Achievement Scale Score as a Function of the Summit Learning Platform Participation and Gender

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Gender	140.83	1	140.83	2.60	.110	0.022
Participation Status	307.20	1	307.20	5.66	.019	0.047
Gender*Program	48.13	1	48.13	0.89	.348	0.008
Error	6291.80	116	54.20			
Total	21510428.00	120				

R Squared = .073, Adjusted *R* Squared = .049.

The results revealed no significant interaction effect between gender and participation in the Summit Learning Platform, $F(1, 116) = 0.89$, $p = .348$, $ES = 0.008$. Therefore, the Summit Learning Platform participation status and gender did not combine to affect mathematics achievement on the ACT Aspire Summative Assessment for ninth-grade students. Given no significant interaction between the variables of the Summit Learning Platform participation and gender existed, the main effect of each variable was examined separately. The main effect for gender was not significant, $F(1, 116) = 2.60$, $p = .110$, $ES = 0.022$. However, the main effect for the Summit Learning Platform participation was significant, $F(1, 116) = 5.66$, $p = .019$, $ES = 0.047$. All the results had small effect sizes (Cohen, 1988). Figure 1 displays the means for Grade 9 ACT Aspire Summative Assessment Mathematics Achievement scores as a function of the Summit Learning Platform participation and gender.

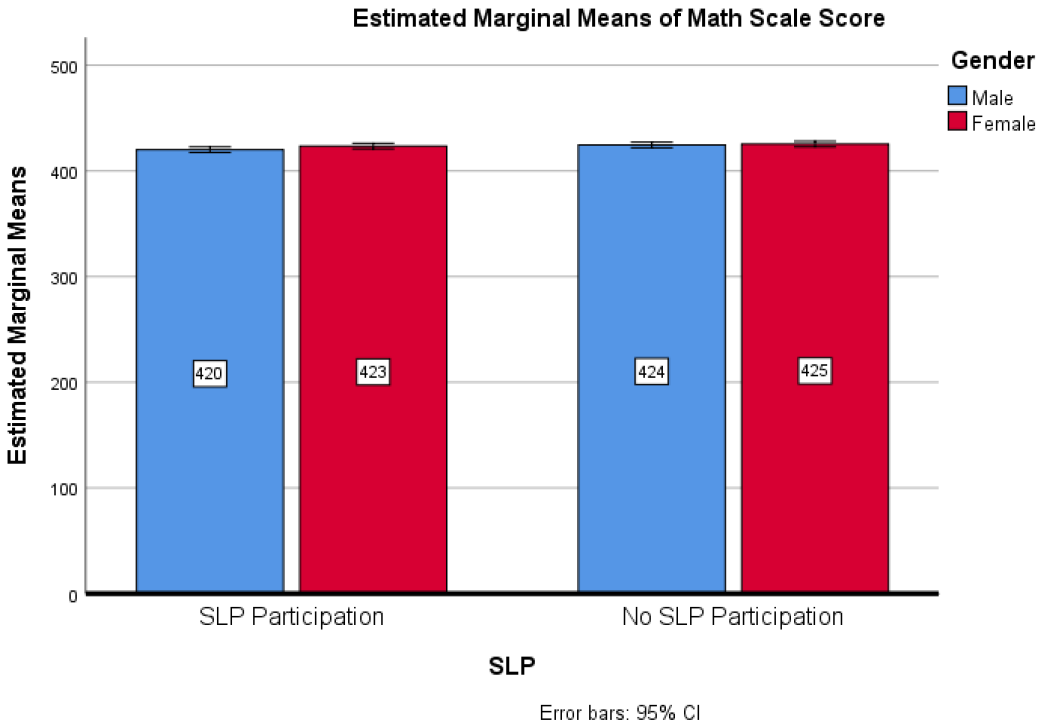

Figure 1. Means for ACT Aspire summative mathematics achievement as a function of the Summit Learning Platform participation and gender for ninth-grade students.

The mean of the Summit Learning Platform participation group (*M* = 421.72*, SD* = 6.62*)* was significantly lower compared to the mean of the group not participating in the Summit Learning Platform (*M* = 424.92*, SD* = 8.13). This result indicated that participation in the Summit Learning Platform did not increase students' scores as well as not participating, regardless of gender, on the mathematics achievement of ninth-grade students. On the other hand, although the mean of the females (*M* = 424.40*, SD* = 7.07*)* was higher compared to the mean of the males (*M* = 422.23*, SD* = 7.92), the difference was not statistically significant. As a result, the null hypothesis for the interaction between gender and participation in the Summit Learning Platform was not rejected. Similarly, not enough evidence existed to reject the null hypothesis for the main effect of

gender. However, evidence was sufficient to reject the null hypothesis for the main effect of participation status.

Hypothesis 2

Hypothesis 2 stated that no significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on English achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Data were screened for entry errors and missing values, with none found. The assumptions for factorial ANOVA, including independent observations, homogeneity of variance, outliers, and normal distribution of the dependent variables for each group were checked. Histograms were used to check normality of gender and participation in the Summit Learning Platform with the ACT Aspire Scale Scores for English. Table 5 displays the group means and standard deviations.

Table 5

Means, Standard Deviations, and Number for ACT Aspire Scale Scores on English Achievement by the Summit Learning Platform Participation and Gender

Gender	Summit Learning Platform Part.	*M*	*SD*	*N*
Male	Participation	423.67	9.60	30
Female	Participation	428.27	9.53	30
	Total	425.97	9.77	60
Male	No Participation	430.17	10.70	30
Female	No Participation	432.60	10.30	30
	Total	431.38	10.49	60
Total	Male	426.92	10.60	60
	Female	430.43	10.08	60
	Total	428.67	10.45	120

To test the assumptions of normality, histograms, as well as Shapiro-Wilk statistics, were examined for each group across the two genders on English achievement scores. Although histograms for the groups appeared normal, Levene's test of equality of variances was conducted within ANOVA, and the test indicated that homogeneity of variances across the groups could be assumed, $F(3, 116) = 0.62$, $p = .603$; therefore, this assumption was met. A 2 x 2 factorial between-groups ANOVA was performed to test the interaction effect between participation in the Summit Learning Platform and gender on the ACT Aspire Summative English. The results of the ANOVA are displayed in Table 6.

Table 6

Factorial Analysis of Variance Results for ACT Aspire English Achievement Scale Score as a Function of the Summit Learning Platform Participation and Gender

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Gender	371.01	1	371.01	3.68	.058	0.031
Participation Status	880.21	1	880.21	8.72	.004	0.070
Gender*Program	35.21	1	35.21	0.35	.556	0.003
Error	11709.90	116	100.95			
Total	22064467.00	120				

R Squared = .099, Adjusted *R* Squared = .076.

The results revealed no significant interaction effect between gender and participation in the Summit Learning Platform, $F(1, 116) = 0.35$, $p = .556$, $ES = 0.003$. Therefore, the Summit Learning Platform participation status and gender did not combine to affect English achievement on the ACT Aspire Summative Assessment for ninth-grade students. Given no significant interaction between the variables of the Summit Learning Platform participation and gender existed, the main effect of each variable was examined separately. The main effect for gender was not significant, $F(1, 116) = 3.68$, $p = .058$, $ES = 0.031$. However, the main effect for the Summit Learning Platform participation was significant, $F(1, 116) = 8.72$, $p = .004$, $ES = 0.070$. The results for the interaction effect and the main effect of gender had small effect sizes; the results for the main effect of participation status had a medium effect size (Cohen, 1988). Figure 2 displays the means for Grade 9 ACT Aspire Summative Assessment English Achievement scores as a function of the Summit Learning Platform participation and gender.

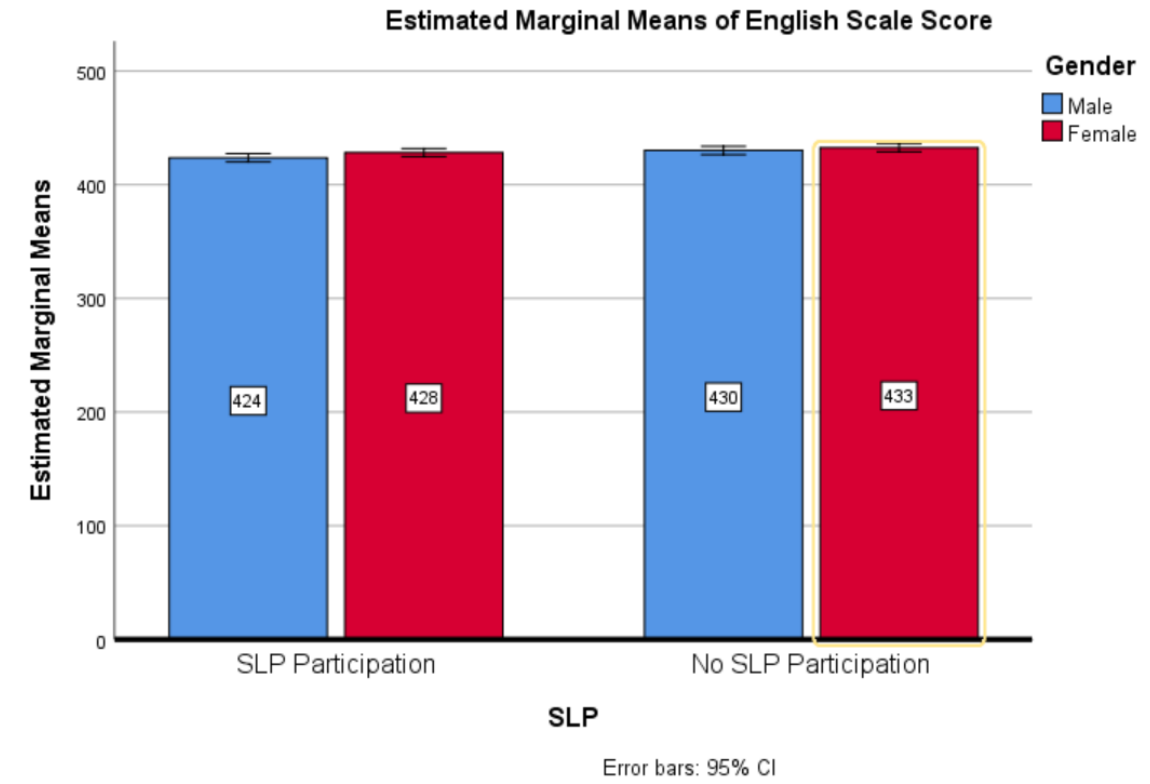

Figure 2. Means for ACT Aspire Summative English achievement as a function of the Summit Learning Platform participation and gender for ninth-grade students.

The mean of the Summit Learning Platform participation group (*M* = 425.97*, SD* = 9.77*)* was significantly lower compared to the mean of the group not participating in the Summit Learning Platform (*M* = 431.38*, SD* = 10.49). This result indicated that participation in the Summit Learning Platform did not increase students' scores as well as not participating, regardless of gender, on the English achievement of ninth-grade students. On the other hand, the mean of the females (*M* = 430.43*, SD* = 10.08*),* though slightly higher compared to the mean of the males (*M* = 426.92*, SD* = 10.60), did not represent a statistically significant difference in the English achievement of ninth-grade students. As a result, the null hypothesis for the interaction between gender and participation in the Summit Learning Platform was not rejected. Similarly, not enough

evidence existed to reject the null hypothesis for the main effect of gender. However, evidence was sufficient to reject the null hypothesis for the main effect of participation status.

Hypothesis 3

Hypothesis 3 stated that no significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on reading achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Data were screened for entry errors and missing values, with none found. The assumptions for factorial ANOVA, including independent observations, homogeneity of variance, outliers, and normal distribution of the dependent variables for each group were checked. Histograms were used to check normality of gender and participation in the Summit Learning Platform with the ACT Aspire scale scores for reading achievement. Table 7 displays the group means and standard deviations.

Table 7

Means, Standard Deviations, and Number for ACT Aspire Scale Scores on Reading Achievement by the Summit Learning Platform Participation and Gender

Gender	Summit Learning Platform Part.	*M*	*SD*	*N*
Male	Participation	417.90	7.67	30
Female	Participation	422.57	8.02	30
	Total	420.23	8.13	60
Male	No Participation	421.40	7.07	30
Female	No Participation	423.63	6.43	30
	Total	422.52	6.79	60
Total	Male	419.65	7.52	60
	Female	423.10	7.23	60
	Total	421.38	7.55	120

To test the assumptions of normality, histograms, as well as Shapiro-Wilk statistics, were examined for each group across the two genders on reading achievement scores. Although histograms for the groups appeared normal, Levene's test of equality of variances was conducted within ANOVA and indicated that homogeneity of variances across the groups could be assumed, $F(3, 116) = 0.64$, $p = .594$; therefore, this assumption was met. A 2 x 2 factorial between-groups ANOVA was performed to test the interaction effect between participation in the Summit Learning Platform and gender on the ACT Aspire Summative Assessment for reading. The results of the ANOVA are displayed in Table 8.

Table 8

Factorial Analysis of Variance Results for ACT Aspire Reading Achievement Scale Score as a Function of the Summit Learning Platform Participation and Gender

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Gender	357.08	1	357.08	6.66	.011	0.054
Participation Status	156.41	1	156.41	2.92	.090	0.025
Gender*Program	44.01	1	44.01	0.83	.365	0.007
Error	6218.23	116	53.61			
Total	21313603.00	120				

R Squared = .082, Adjusted *R* Squared = .059.

The results revealed no significant interaction effect between gender and participation in the Summit Learning Platform, $F(1, 116) = 0.83$, $p = .365$, $ES = 0.007$. Therefore, the Summit Learning Platform participation status and gender did not combine to affect the reading achievement on the ACT Aspire Summative Assessment. Given no significant interaction between the variables of the Summit Learning Platform participation and gender existed, the main effect of each variable was examined separately. The main effect for participation was not significant, $F(1, 116) = 2.92$, $p = .090$, $ES = 0.025$. However, the main effect for gender was significant, $F(1, 116) = 6.66$, $p = .011$, $ES = 0.054$. All the results had small effect sizes (Cohen, 1988). Figure 3 displays the means for Grade 9 ACT Aspire Summative Assessment Reading Achievement scores as a function of the Summit Learning Platform participation and gender.

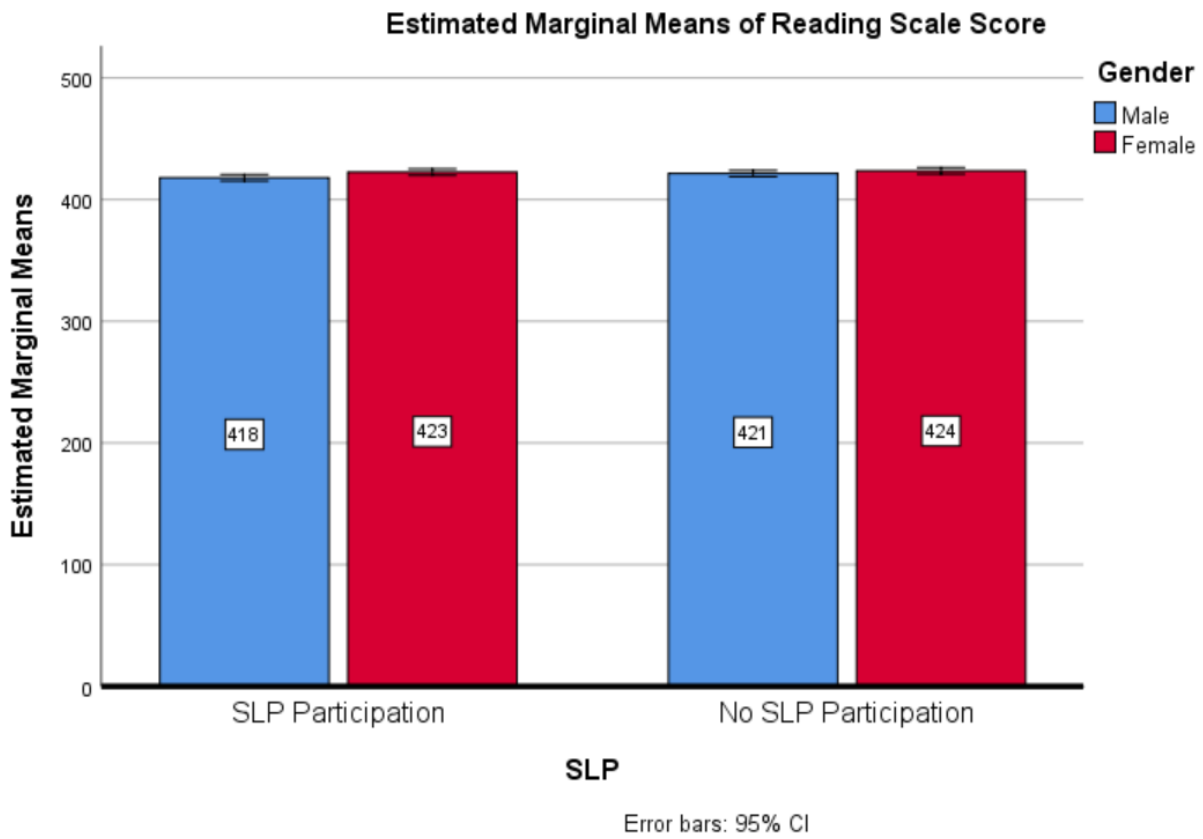

Figure 3. Means for ACT Aspire Summative reading achievement as a function of the Summit Learning Platform participation and gender for ninth-grade students.

Although the mean of the Summit Learning Platform participation group (M = 420.23, SD = 8.13) was lower compared to the mean of the group not participating in the Summit Learning Platform (M = 422.52, SD = 6.79), the difference was not statistically significant. This result indicated that participation in the Summit Learning Platform did not increase students' scores any better than not participating, regardless of gender, on the reading achievement of ninth-grade students. On the other hand, the mean of the females (M = 423.10, SD = 7.23) was statistically higher compared to the mean of the males (M = 419.65, SD = 7.52) in the reading achievement of ninth-grade students. As a result, the null hypothesis for the interaction between gender and participation in the Summit Learning Platform was not rejected. Similarly, not enough evidence existed to

reject the null hypothesis for the main effect of participation. However, evidence from the results was sufficient to reject the null hypothesis for the main effect of gender status.

Hypothesis 4

Hypothesis 4 stated that no significant difference will exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on science achievement measured by the ACT Aspire Summative Assessment for ninth-grade students in four schools in Arkansas. Data were screened for entry errors and missing values, with none found. The assumptions for factorial ANOVA, including independent observations, homogeneity of variance, outliers, and normal distribution of the dependent variables for each group were checked. Histograms were used to check normality of gender and participating in the Summit Learning Platform with the ACT Aspire Scale Scores for science. Table 9 displays the group means and standard deviations.

Table 9

Means, Standard Deviations, and Number for ACT Aspire Scale Scores on Science Achievement by the Summit Learning Platform Participation and Gender

Gender	Summit Learning Platform Part.	*M*	*SD*	*N*
Male	Participation	420.97	8.81	30
Female	Participation	425.20	6.66	30
	Total	423.08	8.03	60
Male	No Participation	425.33	7.25	30
Female	No Participation	426.83	8.10	30
	Total	426.08	7.66	60
Total	Male	423.15	8.30	60
	Female	426.02	7.40	60
	Total	424.58	7.96	120

To test the assumptions of normality, histograms, as well as Shapiro-Wilk statistics, were examined for each group across the two genders on science achievement scores. Although histograms for the groups appeared normal, Levene's test of equality of variances was conducted within ANOVA, and the test indicated that homogeneity of variances across the groups could be assumed, $F(3, 116) = 0.881$, $p = .453$; therefore, this assumption was met. A 2 x 2 factorial between-groups ANOVA was performed to test the interaction effect between participation in the Summit Learning Platform and gender on the ACT Aspire Summative Assessment for science. The results of the ANOVA are displayed in Table 10.

Table 10

Factorial Analysis of Variance Results for ACT Aspire Science Achievement Scale Score as a Function of the Summit Learning Platform Participation and Gender

Source	*SS*	*df*	*MS*	*F*	*p*	*ES*
Gender	246.53	1	246.53	4.11	.045	0.034
Participation Status	270.00	1	270.00	4.50	.036	0.037
Gender*Program	56.03	1	56.03	0.93	.336	0.008
Error	6965.60	116	60.04			
Total	21640058.00	120				

R Squared = .076, Adjusted *R* Squared = .052.

The results revealed no significant interaction effect between gender and participation in the Summit Learning Platform, $F(1, 116) = 0.93$, $p = .336$, $ES = 0.008$. Therefore, the Summit Learning Platform participation status and gender did not combine to affect science achievement on the ACT Aspire Summative Assessment for ninth-grade students. Given no significant interaction between the variables of the Summit Learning Platform participation and gender existed, the main effect of each variable was examined separately. The main effect for gender was significant, $F(1, 116) = 4.11$, $p = .045$, $ES = 0.034$, and the main effect for the Summit Learning Platform participation was significant, $F(1, 116) = 4.50$, $p = .036$, $ES = 0.037$. All the results had small effect sizes (Cohen, 1988). Figure 4 displays the means for Grade 9 ACT Aspire Summative Assessment Science Achievement scores as a function of the Summit Learning Platform participation and gender.

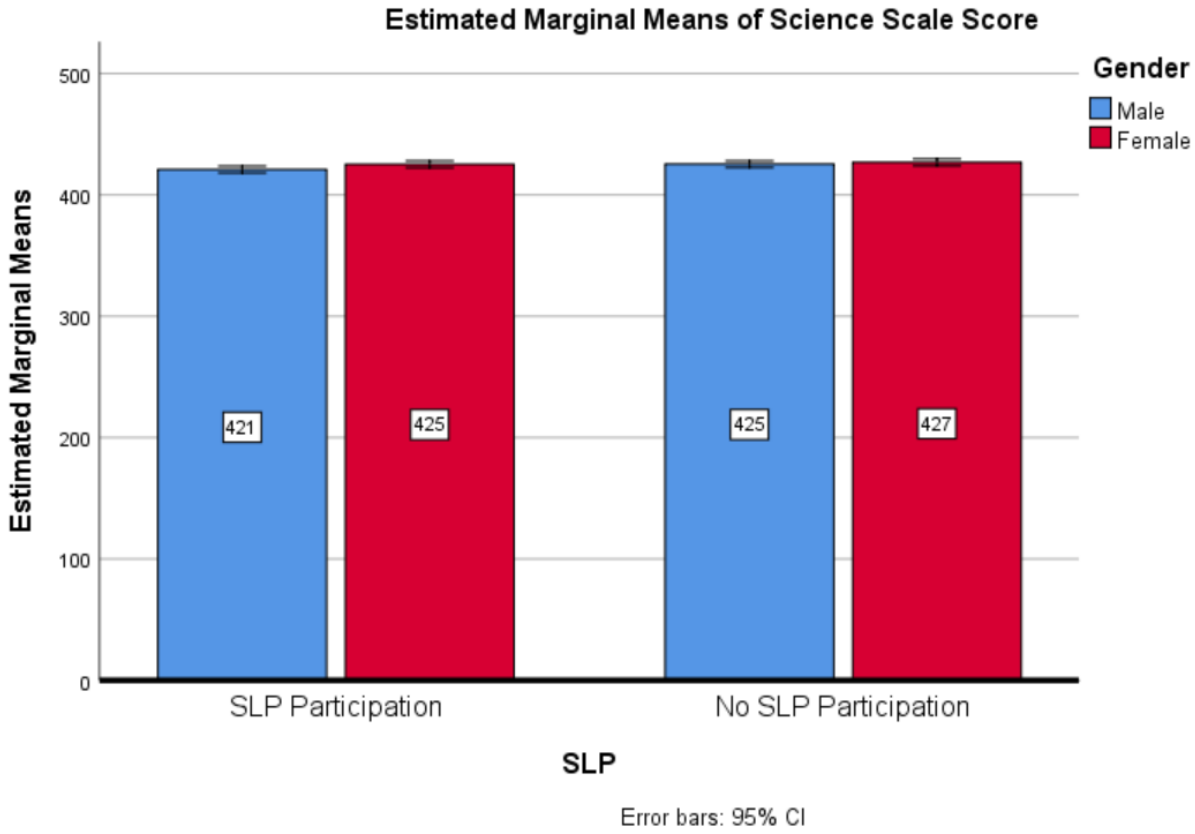

Figure 4. Means for ACT Aspire summative science achievement as a function of the Summit Learning Platform participation and gender for ninth-grade students.

The mean of the Summit Learning Platform participation group (M = 423.08, SD = 8.03) was significantly lower compared to the mean of the group not participating in the Summit Learning Platform (M = 426.08, SD = 7.66). This result indicated that participation in the Summit Learning Platform did not increase students' scores as well as not participating, regardless of gender, on the science achievement of ninth-grade students. Similarly, the mean of the females (M = 426.02, SD = 7.40) was significantly higher compared to the mean of the males (M = 423.15, SD = 8.30) in the science achievement of ninth-grade students. As a result, the null hypothesis for the interaction

between gender and participation in the Summit Learning Platform was not rejected. However, evidence from the results was sufficient to reject the null hypothesis for the main effect of participation status and the main effect of gender.

Summary

The purpose of this study was to determine the effects of participation status in the Summit Learning Platform and gender on academic achievement for ninth-grade students on the 2019 ACT Aspire Summative Assessment. Table 11 summarizes the results of the interaction and main effects of the four hypotheses.

Table 11

Summary of Statistically Significant Results for Hypotheses 1-4

Variables	H_o1	H_o2	H_o3	H_o4
Gender	.110	.058	.011	.045
SLP Participation	.019	.004	.090	.036
Gender*SLP Participation	.348	.556	.365	.336

In general, the results indicated no significant interaction between participation in the Summit Learning Platform and gender on all four academic achievement areas measured by the 2019 ACT Aspire Summative Assessment for ninth-grade students. Regarding the main effect of the Summit Learning Platform participation, regardless of gender, the results indicated a significant effect on mathematics, English, and science achievement for ninth-grade students with those not participating scoring significant

higher. For the main effect of gender, regardless of participation in the Summit Learning Platform, findings were mixed with significantly statistical results for reading and science achievement. Overall, female means were significantly higher than males on scale scores for reading and science. Chapter V will discuss the findings of each hypothesis and an analysis of the implications of the study relating to the larger context of the literature review from Chapter II and the theoretical framework. Research questions are analyzed in the next chapter to determine conclusions and broader theoretical issues in correlation with this study. Recommendations for potential policy and practice are provided to allow readers of the study to analyze the possible way this study can be used to determine the next steps for schools and districts.

CHAPTER V

DISCUSSION

Educators continue the quest to find innovative ideas to stimulate student achievement by using personalized learning that provides options for all learning styles. While the concept is not new in education, mastery learning, if implemented correctly, continues to help every student succeed. Mastery learning ensures that students reach mastery of a concept before they advance. This instructional strategy allows personalization for students and builds capacity for teachers to facilitate learning for each student. Bloom (1968) and Keller (1968) linked student learning to factors such as student aptitude and quality of instruction. The primary indicator evolved from students being allowed to learn the material at their own pace (Kampen, 2019). Bloom emphasized five key variables that students needed for concept mastery: aptitude for the kinds of learning, quality of instruction, ability to understand instruction, perseverance, and time allowed for learning. His design focused on variations of five variables that moved students from the simple notion of aptitude and insisted every student was capable of mastery given the right conditions (Kampen, 2019). Keller proposed five principles to his personalized system of instruction:

1. Students should work through the course at their own pace.
2. Unit tests must be completed with a high level of accuracy before students move on.

3. Lectures are not the source of critical information.
4. Teachers and students use written communications in textbooks and study guides.
5. Proctors bridge the gap between students and teachers through the process of attaining success.

While Bloom and Keller have similarities in their foundations for mastery learning, the theory of mastery learning has grown with added tools to enhance the process, such as ed-tech tools and blended learning models. Ed-tech tools allow teachers to integrate technology into their pedagogy to engage learners through interactive experiences. Blended learning uses some ed-tech tools to offer a mix of online learning and face-to-face experiences from which students may choose (TeachThought, 2019). The Summit Learning Platform can be defined as a blended learning experience for students to have a choice in how they master skills.

For many educators, trying to find a balance between personalizing learning and facing the scrutiny of not explicitly teaching content brings frustration when students are not achieving. Personalized learning involves four core elements (Vargo, 2017): targeted instruction, data-driven decisions, flexible content, and student reflection and ownership. One of the components on the Summit Learning Platform is the incorporation of the playlist. The playlist is a list of resources that help students understand the content they should master for a unit. The responsibility shifts when students use the playlist to build their knowledge on content. Students control when and how they complete the assignments (Gonzalez, 2016). The key to creating a personalized experience is giving options to students in their playlist that meet the needs of the individual student. The

foundation of the Summit Learning Platform is to engage students in learning projects that build cognitive skills and mastery of content delivered from a playlist.

For this study, the researcher examined the effects by gender between students participating in the Summit Learning Platform versus no participation in the program on academic achievement for ninth-grade students in Arkansas. The study was designed to determine whether participation in a personalized learning platform had an effect on student achievement. This chapter included findings for the four hypotheses, implications of this study's results, and recommendations for potential practice and research considerations.

Findings and Implications

A 2 x 2 factorial ANOVA was used to analyze each hypothesis. The independent variables for this study were participation in the Summit Learning Platform and gender. The dependent variables for Hypotheses 1 through 4 were mathematics, English, reading, and science achievement, respectively, measured by the 2019 ACT Aspire Summative Assessment. Interaction and main effects were examined for each hypothesis.

Hypothesis 1

Hypothesis 1 stated that no significant difference would exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on mathematics achievement measured by the ACT Aspire Summative Assessment. The results indicated that participation in the Summit Learning Platform did not interact with gender on students' mathematics achievement. Therefore, no significant interaction effect was noted between participation and gender on mathematics achievement scores for ninth-grade students, and the null hypothesis for the interaction

was not rejected. Similarly, the main effect of gender indicated no statistical significance; therefore, the null hypothesis was rejected. The mean of the Summit Learning Platform participation group was significantly lower compared to the mean of the group not participating in the Summit Learning Platform. Therefore, the main effect of participation was statistically significant, and the null hypothesis was rejected.

Hypothesis 2

Hypothesis 1 stated that no significant difference would exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on English achievement measured by the ACT Aspire Summative Assessment. The results indicated that participation in the Summit Learning Platform did not interact with gender on students' English achievement. Therefore, no significant interaction effect was noted between participation and gender on English achievement scores for ninth-grade students, and the null hypothesis for the interaction was not rejected. Similarly, the main effect of gender indicated no statistical significance; therefore, the null hypothesis was rejected. The mean of the Summit Learning Platform participation group was significantly lower compared to the mean of the group not participating in the Summit Learning Platform. Therefore, the main effect of participation was statistically significant, and the null hypothesis was rejected.

Hypothesis 3

Hypothesis 3 stated that no significant difference would exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on reading achievement measured by the ACT Aspire Summative Assessment. The results revealed that participation in the Summit Learning Platform did

not interact with gender on students' reading achievement. Therefore, no significant interaction effect was noted between participation and gender on reading achievement scores for ninth-grade students, and the null hypothesis for the interaction was not rejected. However, the mean of the females was statistically higher compared to the mean of the males in the reading achievement. Therefore, the main effect of gender was statistically significant, and the null hypothesis was rejected. The mean of the Summit Learning Platform participation group, however, was not significantly different compared to the mean of the group not participating in the Summit Learning Platform. Therefore, the main effect of participation was not statistically significant, and the null hypothesis was retained.

Hypothesis 4

Hypothesis 4 stated that no significant difference would exist by gender between students participating in the Summit Learning Platform program versus no participation in the program on science achievement measured by the ACT Aspire Summative Assessment. The results indicated that participation in the Summit Learning Platform did not interact with gender on students' science achievement. Therefore, no significant interaction effect was noted between participation and gender on science achievement scores for ninth-grade students, and the null hypothesis for the interaction was not rejected. However, the mean of the females was significantly higher compared to the mean of the males in the science achievement of ninth-grade students. Thus, the main effect of gender was statistically significant, and the null hypothesis was rejected. Similarly, the mean of the Summit Learning Platform participation group was significantly lower compared to the mean of the group not participating in the Summit

Learning Platform. Therefore, the main effect of participation was statistically significant, and the null hypothesis was rejected.

The results of the study were mixed across the four hypotheses analyzed. The interaction between participation and gender was not statistically significant for any of the academic performance areas measured for this study. This study was dependent upon a set of variables within a population of ninth-grade students in four school districts in Arkansas. While over 400 schools in 38 states participate in the Summit Learning Platform program (Summit Learning, 2018), the current study found that students not participating in the program significantly outscored the participating group in three of the four hypotheses. Finding comparative literature on The Summit Learning Platform for the analysis of this study was challenging due to the lack of literature provided on how the platform affected student achievement based on a norm-referenced assessment and gender. From the literature review, the Summit Learning Platform focused on how the platform increased college attendance and post-secondary success rather than on how the platform affected mastery of learning and content for students (Jacobs, 2017a).

While no interaction effect between students' participation in the Summit Learning Platform and gender existed, the students participating in the Summit Learning Platform consistently scored lower, in general, compared to those not participating. In this study, therefore, the Summit Learning Platform did not have a significant influence on student achievement.

Bridging Personalized Learning and Habits of Mind

In the literature review, four foundations of personalized learning were explored: flexible content and tools, targeted instruction, student reflection and ownership, and

data-driven decisions (Johns, 2018). While these have been identified as four core elements, other ways to personalize learning for students exist that will not overwhelm the classroom teacher. Using the foundations of personalized learning and the 16 Habits of Mind (Kallick & Zmuda, 2017a), administrators could develop professional growth goals for each staff member to implement throughout the year. The growth goals could be separated into quarters using one of the foundations of personalized learning and four of the Habits of Mind to give teachers concrete ways to alter their instructional practices to suit the needs of student learning.

Understanding the Mastery Learning Process

The theoretical framework for this study was centered around mastery learning and how teachers could use this cycle of inquiry to ensure students learned content at their own pace. The process of mastery learning involved personalizing the learning for students. To effectively strengthen this process, mastery and personalization of learning must be done in conjunction to produce the most effective level of understanding for students. A high level of support is needed for the entire school team, but the process must also address the students' voices in the decision about their learning (Bean & Cognetta, 2016). To improve sustaining the process of mastery learning, teachers must understand the shift of instructional strategies coined by Bloom (1968) as the feedback and corrective method. The two elements that evolved into the pillars of mastery learning were the feedback, corrective, and enrichment process and the congruence among instructional components or alignment. As administrators develop the learning process for teachers, they must adjust the time teachers have to collaborate to develop units of instruction that allow students to move through mastery learning.

Involve Stakeholders in the Summit Learning Platform

The literature on the Summit Learning Platform offered mixed reviews from stakeholders in communities that had adverse reactions to the implementation of the platform in schools. One of the main concerns stated was the amount of screen time students had during the school day (Kronk, 2018). Most schools decide to pilot the platform in their schools without allowing the stakeholders to address their concerns or ask questions. While the analysis in this study did not represent a strong correlation between students' participation in a personalized system of learning and the effect on their achievement, one reason could be the implementation of the critical structure from the teachers. While the system of the Summit Learning Platform can be used as the program is packaged, one key finding in the literature for teachers was how they could tailor the learning for students and identify essential standards for mastery to unpack the content into sections (Miller, 2018). Screen time can be decreased, and time spent on facilitating learning through cooperative strategies, project-based learning, and mini-lessons can become the foundation of a new way of using the platform to increase student achievement.

Recommendations

Potential for Practice/Policy

This study examined the influence of participation in the Summit Learning Platform and gender on student achievement measured by the 2019 ACT Aspire Summative Assessment for mathematics, English, reading, and science. Participants for the study were limited to ninth-grade students in four Arkansas high schools, two schools participating in the Summit Learning Platform for 1 or more years and two schools not

participating in the Summit Learning Platform. The results indicated no significant interaction between gender and participation in the Summit Learning Platform.

The findings of this study may be helpful by assisting district and school leaders in selecting appropriate curricular resources to facilitate the digital learning continuum for students to develop skills for the next century. Each school district has autonomy in developing a curriculum that meets the needs of the students served. The first recommendation for school leaders is to develop a curriculum that addresses the needs of mastery learning through personalizing the content for individual students. Essential standards should be developed through the professional learning community process and resources developed to address the cycle of learning for mastery. Once the curricular component has been developed, school leaders should determine if the platform for personalization will engage students on all levels and address the concerns of stakeholders involved. Through their collaborative time, educators will have the time to make the personalized platform meet the needs of students and provide them with a learning experience that will ensure students master content at a level of rigor fit for each student.

Second, school leaders might consider the financial effect a personalized learning platform could have on the individual school's budget. Learning platforms use technology, and in most cases, 1:1 technology (Ransey, 2017). The cost of issuing each student a device could be potentially costly for school districts. Based on the results of this study, the technology component may not benefit the schools if teachers are not adequately trained in developing systems to use the learning platforms and technology in a way that provides engaging experiences. Before implementing a full 1:1 technology

system for schools that aid in the personalization of learning for students, administrators must consider the return on the initial investment and how they will develop a plan to keep the technology current.

The final recommendation for educators is to look at the development of the whole child through the process of the personalized learning system. While the effect on student achievement may not yield the gains desired for norm-referenced assessments, the skill set development by students to display innovation, creativity, and self-motivation will be attractive for business leaders looking to retain employees ready for the workplace. As educators look to develop the whole child, school leaders should ensure that they work with business leaders and teachers to develop content that centers around the skills needed to be successful beyond the secondary education level and equips students with the knowledge to move toward college or career readiness.

Future Research Considerations

This research study did not provide sufficient evidence that the use of a personalized learning platform, such as the Summit Learning Platform, had any significant effect on student achievement. However, additional research and studies should be completed to thoroughly examine how effective the Summit Learning Platform is on student achievement. To strengthen the body of work regarding the Summit Learning Platform, a further examination could be explored on the following:

1. An investigation on the long term mastery of content for students should be conducted. Limited research exists on the Summit Learning Platform and how the four pillars, 1:1 mentorship, and providing students with a playlist of assignments affect the mastery of learning over time. A future study could use

essential standards embedded into the platform and test for mastery of skills rather than the use of student achievement through a norm-referenced assessment.

2. Additional research could focus on the fidelity of implementation of the Summit Learning Platform with a focus on time spent on effectively training teachers.
3. Future research could complete a comparative analysis of personalized learning platforms on student achievement.
4. Additional research should compare other variables such as economic considerations and parental support for the instructional platform on how the Summit Learning Platform could affect student achievement.

Conclusion

This study attempted to determine the effect of the Summit Learning Platform as a personalized learning component on student achievement. While personalized learning is not a new concept, the theories surrounding student achievement continue to evolve by tailoring education to meet the needs of individual students. Data from this study did not indicate that students who participated in the Summit Learning Platform performed at a higher level of achievement than students who did not participate in the platform. Learning is an interactive assignment that should not be left to the student to do alone. Teachers need an enormous amount of time to broaden the lens in which they view personalized learning to ensure students are navigated through the process of mastering skills.

Personalized learning offers educators a tool to foster a culture of intrinsic motivation to students in a time where learning has become clouded by technology that aids in providing news at the fingertip of students. The literature reviewed in this study highlighted the importance of students being digitally literate to learn, unlearn, and relearn skills at a rapid pace to keep up with the demands of a fast-changing economic status in the educational system. Every experience students have during their time in school helps to shape their engagement with future learning opportunities. The goal of education is to provide learning experiences that respond to the unique needs and characteristics of students that mirror the interest, motivation, and aspirations of the students in the school.

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