Differences Between Blended and Traditional Learning in a High School Government Class

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Abstract

As different environments have been explored to optimize effectiveness and efficiency in learning, the concept of blended learning has evolved as a possible solution. Blended learning environments and traditional learning environments in the high school government classroom were compared to determine if there was a difference in time spent learning, course grades, enjoyment of the course, and student recommendation of the course to others. Comparisons were also made to find out if there was a difference in students reporting that they would take a blended or online course in the future and if there was a difference in students reporting that the government class had been helpful in [their] ability to learn effectively on [their] own. Students' perceptions of the effect the government class had on their time management skills were compared as well. The results of the current study indicated that students in the blended learning environment not only reported enjoying the course more than those in the traditional learning environment did, but they also reported that they would be more likely to take a blended course in the future. A significant number of students reported that they would also be more likely to take an online course in the future and that they would recommend that others take the course in a blended environment. Additionally, students reported that the course helped them to be more self-regulated learners and that it helped them to prepare for time management challenges in the future. The results of the current research suggest that blended learning had a positive impact on student attitudes about blended and online learning, and the development of self-directed learning and time management skills. The findings of the study for USD 266 suggest that blended learning should be implemented to include additional grade levels and courses as well as additional types of blended

learning. Additional recommendations include using a mixed methods research design and following up with students who participated in the study with a survey after their first year of college to determine whether blended learning affected readiness for undergraduate online or blended courses.

Dedication

This work is dedicated to my husband Daniel who supported me every step through this journey. You have encouraged me, supported me, and believed that I could do things that I never thought I could do. I could not have done this without you. Thank you for your patience and never ending faith. I love you so very much. You make me a better person.

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Chapter One

Introduction

Led by the National Governors Association Center for Best Practices and the Council of Chief State School Officers in June of 2010, 45 states came together to collaborate on what was proposed to be career and college ready standards for young learners (Porter, McMaken, Hwang, & Yang, 2011). These standards embrace the necessity that 21st century learners should be encouraged to use collaboration and technology within their learning. The Common Core State Standards (CCSS) for grades K-12, released in June 2010 by the National Governors Association (NGA) Center for Best Practices are guiding 21st century instruction in the direction that includes applications of technology rich learning (as cited in Porter et al., 2011). CCSS forced those who implemented them to move away from the previous content standards across many states in the areas of English language arts and mathematics. The NGA established agreement on expectations for student knowledge and skills that should be attained in Grades K–12 to develop the CCSS (Tucker, 2012). The CCSS for mathematics and for English language arts are intended to apply to the quality of what students are to learn and not on how that content is to be taught (Porter et al., 2011).

Within the CCSS, students are now required to "use technology, including the Internet, to produce and publish writing and to interact and collaborate with others" (NGA Center & CCSSO, 2010, p.18). Students are also required to learn to participate in conversations and collaborations with different learners so that they can gain knowledge from each other and express their own ideas (Tucker, 2012). In Common Core language,

> They use technology and digital media strategically and capably. Students employ technology thoughtfully to enhance their reading, writing, speaking, listening, and language use. They tailor their searches online to acquire useful information efficiently, and they integrate what they learn using technology with what they learn offline. (NGA Center & CCSSO, 2010, p.7)

In 2014, CCSS came under scrutiny because of fears from the states of federal control over local education (Smith, 2014). However, the standards are meant to provide shared expectations and consistency in curriculum between states and an alignment to other high achieving countries (Schmidt, Want, & McNight, 2005). The standards were later evaluated in a study by Porter et al. (2011). Math topics that were in the top 2/3 of the high achieving countries helped to determine what the common core standards should be for math. The study revealed that the common high achieving countries each tended to teach fewer topics per grade level and had a consistency of standards at the national level (Schmidt & Houang, 2007). The standards are also meant to create a more efficient and collaborative approach to developing high quality assessments (Porter et al., 2011).

Additionally, geographic location no longer prevents students from communicating with and experiencing the world around them. Changing student populations and technological innovation are transforming education. These changes have created a need for knowledgeable, critical and creative thinkers who require an innovative and inquiry-based approach to learning, a curriculum that includes a blended approach, and appropriate learning technologies (Gecer & Dag, 2012). To implement these changes, different research based strategies on how students learn need to be used to plan instruction. In addition to multiple learning styles and intelligences, students need

to be able to learn from any location and at any time of the day (Chou & Liu, 2005). This would include distance learning. Effective instructional strategies and technology integration techniques may offer students better understanding, more efficient ways to learn, higher motivation, and better performance within the learning environment. As different learning strategies have been explored to optimize effectiveness and efficiency in learning, the concept of blended learning has been considered as a possible solution. While there are many definitions of blended learning, it can be described as a combination of traditional classroom and online learning that contains some of the benefits of learning online without the loss of traditional contact (Rovai & Jordan, 2004).

School educators are challenged to improve student achievement with limited resources. Educators are also expected to teach differently because students have grown up in a different world that is technology and information rich. Access to information can happen in many alternative locations. The confinement of a school classroom is no longer necessary for students to learn or to receive quality instruction.

Background

This study took place in the Maize USD 266 school district in 2014. Maize USD 266 is a public suburban school district in the city of Maize and is the 12th-largest school district in Kansas (Maize USD 266, 2014). During the 2013-2014 school year, the enrollment in Maize USD 266 was approximately 7,000 students that included students in pre-kindergarten through 12th grade (see Table 1).

Table 1

2014 Maize USD 266 Ethnicity and SES Percentage of Enrollment

	Percentage
White	81.0
Hispanic	6.0
African American	2.0
American Indian/Alaskan	1.0
Asian	4.0
Multi-Ethnic	6.0
Free/Reduced Lunch	15.5

Note: Adapted from *About Us*, Maize USD 266, 2014.

During the 2013-2014 school year, Maize USD 266 employed approximately 390 teachers in five elementary schools, two middle schools, two high schools, one alternative school, and one virtual school. This study was conducted in the two high schools in the district. Table 2 shows that Maize High School enrolled 1,383 students (276 [20%] free and reduced lunch) and Maize South High School enrolled 762 students (83 [11%] free and reduced lunch) (Maize USD 266, 2013b).

Table 2

Maize USD 266 Enrollment

Students	Enrollment
K-11 Virtual Students	375
Elementary School Students	2,933
Middle School Students	1,615
High School Students	2,145
Total Enrollment	7,068

Note. Adapted from 2013-14 USD 266 STATS Retrieved from www.usd266.com, 2014

The 2012 Maize USD 266 Technology Plan (a plan that is revised every 5 years) was approved by the Board of Education and submitted to the Kansas State Department of Education (Maize USD 266, 2012). According to the 2012 district Technology Plan, Maize USD 266 maintained approximately 6,000 computers for approximately 7,000 students, a ratio of 6:7. By comparison, the national student to computer ratio is 3:1 according to data from the U.S. Department of Education (as cited in Snyder & Dillow, 2012). These national data were collected through surveys to retrieve information regarding use of a range of educational technology resources, including district and school networks, computers, and devices for use with computers. Because of ongoing efforts to provide support for instructional use, availability of technology and Internet connectivity, implementation of basic technology requirements for teachers, and other professional development opportunities began to increase in the mid 90's. Interactive technologies, such as interactive white boards, wireless slates, and interactive voting devices were added (Director of Technology, personal communication, August 2013). A bring your own technology initiative was put into place during the Fall 2013 semester,

led by the district's technology director, with wireless access for staff and student personal devices. With the increased use of web-based applications and online textbooks, infrastructure needs were also addressed (Director of Technology, personal communication, August 2013).

Since 2009, Maize USD 266 has opened new schools and renovated existing schools. Maize South High School, formerly Maize South Middle School, was renovated and opened in August of 2009. The new Maize South Middle School and Maize South Elementary were also opened in 2009 at which time the technology and curriculum departments worked cooperatively to update the district's technology plan (Director of Technology, personal communication, August 2013). Each school, new or renovated, has been equipped with cable in each classroom, high speed wireless access, mounted projection in each classroom, and access for checkout from the media centers to document cameras, wireless voting devices, and recording devices and cameras (Maize USD 266, 2012).

During the summer of 2013, Maize USD 266 began searching for a new online provider for its credit recovery and summer school program. Previously, Maize USD 266 had offered blended summer school courses with online components, but the courses were labor intensive for the teachers to create, expensive for the district to pay teachers to recreate, and were outdated due to the move towards the new CCSS (personal communication, Assistant Superintendent, August 5, 2013). Through a personal meeting with the assistant superintendent, it was communicated that currently used online courses would no longer be funded for updating because of the move toward the CCSS and cuts

in district budgets by the state of Kansas. Maize USD 266 officials met to determine alternatives.

With limited funds to update credit recovery (failed courses that are retaken) and credit acquisition, Maize USD 266 courses (courses taken to acquire credit outside of the traditional school setting) to the CCSS, leaders wanted to adopt an online program that would offer the district answers, and students and staff more flexibility. Maize USD 266 selected Edgenuity because all of the courses that were needed were offered in one package and had already been designed to address Common Core State Standards (Maize USD 266, 2013a). According to Maize USD 266 Board Documents from August 2013, the Board of Education and superintendent liked that the courses had the potential to take place anytime, anywhere, and that they could be used within the traditional classrooms. Edgenuity curriculum is presented in a lecture format through videos, interactive questioning, and assessments. This software would allow Maize USD 266 to offer students a blended approach to learning by giving students the ability to learn away from school. The software would also be a resource in the district's virtual school. Blended learning within the regular classroom setting was not something new in Maize USD 266. Interactive whiteboards, laptops, online textbooks, the Blackboard learning management system, and iPads were just a few tools that educators used to blend learning in the district. Technology had been regularly integrated and accessed in courses. However, as research about blended learning continued to change, new possibilities were brought to light, especially with the adoption of the Edgenuity online curriculum in the Fall 2013. Edgenuity's online courses were needed to help alleviate scheduling conflicts for

students, give students options to retake courses that were failed, and provide online integration for regular education courses.

New opportunities exist for students who have limited access to a wide range of courses (Watson, Pape, Murin, Gemin, & Vashaw, 2014). Instruction has been redesigned with a focus on learning with college and career readiness at a faster pace and with more efficiency (Garrison & Kanuka, 2004). Blended learning provides opportunities for online instructional delivery for a portion of the day to provide for deeper learning and higher productivity.

Blended learning is a growing instructional trend that, when implemented effectively, has provided the benefits of teacher interaction while also offering students learning opportunities (Osguthorpe & Graham, 2003). Students have access to online resources and curriculum that allow them to work at their own pace and research information more deeply. Blended learning permits teachers to design courses that give students the best of both traditional and online learning. The reduced numbers of traditional lectures may result in the students investigating topics themselves or with their peers, rather than being reliant on the lecturer to provide all the answers in class.

Maize USD 266 uses a block scheduling system where students attend four block courses a day for approximately 87 minutes per block over four quarters rather than a traditional schedule of 7 periods a day for approximately 45 minutes a period. This type of block scheduling is known as a "4x4" semester plan. In the blended course design, students attended traditional class three days a week for 87 minutes a day and two days a week the coursework was completed online (Superintendent, personal communication, August 2013). Students were enrolled in the blended learning government course in

Block 1 at high school A during quarters 1 and 2 and high school B during Block 1 in quarters 1, 2, and 3. Students were given the option to complete the coursework at school or from home. However, when a student's coursework suffered, grades dropping below 80%, the student was required to come to school on the days of blended instruction to receive extra support. Students were given the opportunity to opt out of the blended course design after registration due to the possibility of transportation problems or lack of technology availability at home.

Statement of the Problem

Learning online is very different from traditional learning. Students who learn purely online do not have the same opportunities to interact face-to-face with their instructors or peers. While online students can substitute video and interactive electronic features for classroom instruction, some accountability can be lost. Students in online courses require self-efficacy to complete coursework on their own (McMahon & Oliver, 2001).

Students entering high school in 2014 were born in a world with Internet. The majority of twenty-first century learners are expected to be able to apply self-regulated learning strategies and access information electronically in most any profession that they choose. According to Allen and Seaman's 2006 report for the Sloan Consortium, higher education institutions taught 3.2 million students online in Fall 2005. Those online students represented 17% of all higher education students, a growth of 2.3 million from what had been reported the previous year (Allen, Seaman, & Garrett, 2007). According to the results of the Sloan Consortium survey in 2006, the one factor associated with online learning that academic leaders from many different sizes of institutions found to

be true was the idea that "students need more discipline to succeed in online courses" (Allen & Seaman, 2006, p. 12). In other words, academic leaders believe that students need to be self-regulated in order to succeed in online courses. Almost two-thirds (63.6%) of all educational institutions surveyed, reported the lack of self-regulation to be a significant barrier (Allen & Seaman, 2006, p. 13).

Blended learning has been shown to be an effective mode of instruction (Garrison & Kanuka, 2004; Garrison & Vaughan, 2008). According to the North American Council for Online Learning, the blended learning model is predicted to become the leading model of education in K-12 education (Means, Toyama, Murphy, & Baki, 2013). Barbour, Archambault, and DiPietro's (2013) research shows a trend in that direction with data showing that blended learning has presented the most substantial growth of any educational model presently being applied in K-12 education. At the college level, there have been additional studies about this type of instruction (Bonk & Graham, 2006; Halverson, Graham, Spring, & Drysdale, 2012; Osguthorpe & Graham, 2003). As colleges and universities offer more and more online courses, high school educators must utilize strategies that support this trend as they prepare their students for college and careers. New opportunities for connecting students to learning through blended learning have been chosen as a structure that Maize USD 266 wished to explore. Maize USD 266 administration and staff needed to know whether participation in blended learning results in improved time management skills and grades for students. Additionally, the district needed to determine whether participation in blended learning results in students becoming more self-regulated learners and learning the same material in less time. The days of five neat rows of students soaking in the knowledge from a teacher lecturing in

the front of a high school classroom have ended in many institutions. Students have the tools that they need to learn information that was previously taught in a traditional classroom and is now could be taught in an alternative online environment. Although these tools are available in Maize USD 266, whether students can do the work on their own to supplement the classroom instruction has not been determined. Maize USD 266 strives to make sure that students are prepared for college and career when they leave high school. Traditional classrooms in Maize USD 266 are adapted to meet the needs of the 21st century learner. Maize USD 266 was interested in finding out if blended learning was working at the high school level.

Purpose of the Study

The purpose of this study was to examine the difference in the amount of time spent learning and to examine the difference in course grades achieved between government students enrolled in a blended course environment and students enrolled in a traditional course environment. The next purpose of this study was to determine whether there was a difference between government students enrolled in blended course environment and students enrolled in traditional course environment reporting that they enjoyed taking the government course, were likely to take another blended course, were likely to take an online course, and would recommend the course to others between government students enrolled in blended course environment and students enrolled in traditional course environment. Additionally, a purpose was to determine whether there was a difference in students reporting that the course required students to be self-regulated learners between government students enrolled in blended course environment and students enrolled in traditional course environment. The final purpose was to

determine whether there were differences in student perceptions of the development of their time management skills between government students enrolled in blended course environment and students enrolled in traditional course environment.

Significance of the Study

While studies have shown that blended learning has been successful at the post-secondary level (Pereira, et al. 2007), far less research has been conducted on blended learning, especially the enriched virtual model, at the high school level. In fact, iNACOL reported in 2010 that Kansas had no fully blended K-12 schools (Wicks, 2010). Online access to information is available to students in a variety of environments. Not only is online information usually free and easy to access, but it is easily kept up to date. According to a report in *Keeping Pace K-12 With Online and Blended Learning* by the Evergreen Education Group, "Students nationwide are increasingly taking classes online at least part of the time: In the 2011-2012 school year, nearly 620,000 students were enrolled in single online courses in 28 states, an increase of 16% from the year before" (as cited in DeNisco, 2013, p. 38). Additionally, within the 2013 *Keeping the Pace* report, the California Department of Education reported 66,475 students taking at least one online course (an annual increase of 71%) and 20,022 students were reported taking at least 50% of their classes online an increase of 40% (as cited in Watson, Murin, Vashaw, Gemin, & Rapp, 2013, p. 75). These statistics provide relevance and importance of online and blended learning and information leading to the effectiveness of online and blended learning for high school students.

The study of the effectiveness of blended learning is also important because it has the potential to aid in decisions regarding curriculum and instruction. Schools need to

determine whether to provide online access to curriculum. The option to purchase online curriculum rather than bound textbooks is one that many districts have already chosen. Research on online instructional designs is crucial to finding out how students learn best. According to Garrison and Kanuka (2004), blended learning can be transformative because it forces teachers to reflect on traditional teaching practices and reorganize the current structure of teaching and learning.

This study could also contribute to the body of research regarding blended learning at the high school level. According to Christensen, Horn, and Johnson's 2008 book, *Disrupting Class*, it was predicted that by 2019, 50% of all high school classes would be delivered online. This current research may help lay the groundwork for future experimental and comparative studies on the effectiveness, efficiency, and strengths and areas of concern in the blended and traditional instructional formats.

Delimitations

Blended learning research within the different government courses taught at both high schools was subject to certain delimitations, which are boundaries that are self-imposed and set by the researcher for the purpose and range of the research study (Lunenburg & Irby, 2008). This study had the following delimitations:

1. This study contains data collected from a student population in a suburban school district located in the Midwest.
2. The sample for this research study was delimitated to students enrolled in traditional and blended government classes during the 2013-2014 school year.
3. Data were collected during the 2013-2014 school year.
4. Course grades were used as the only measure of student achievement.

5. Time spent online was gathered from Edgenuity report data and Skyward attendance records.
6. Student perceptions were determined by the completion of an online, researcher-developed survey instrument.
7. Completion of the survey was encouraged, but voluntary.

Assumptions

Assumptions are premises that are accepted as true in a research study. "Assumptions are postulates, premises, and propositions that are accepted as operational for purposes of the research" (Lunenburg & Irby, 2008, p. 135). This research study was subject to the following assumptions:

1. Student ability levels were comparable in the blended and traditional environments.
2. Teacher effectiveness was comparable in the blended and traditional environments.
3. Students have access to technology and Internet outside of the school setting.
4. Students understood the items on the survey.
5. Students responded to the survey items honestly and accurately.

Research Questions

This study included seven research questions, which focused on students' time spent learning, grades, students reporting that they enjoy taking the government course, perceptions in student ability to learn on their own (self-regulation) and time management skills.

RQ1. To what extent is there a difference in the amount of time spent learning between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

RQ2. To what extent is there a difference in course grades between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

RQ3. To what extent is there a difference in students reporting that they *enjoyed taking this government course* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

RQ4. To what extent is there a difference in students reporting that they are *likely to take a blended or online course in the future* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

RQ5. Is there a difference in the number of students reporting that they are *likely to recommend the course to others* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

RQ6. To what extent is there a difference in students reporting that government class has been helpful in [their] ability to learn effectively on [their] own between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

RQ7. To what extent is there a difference in students' perceptions of the effect the government class had on their time management skills between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

Definition of Terms

Key terms are words that contain specific meanings to help the reader understand the study. According to Locke, Sirduso, & Silverman, this section should "define terms that individuals outside the field of study many not understand and that go beyond common language" (as cited in Creswell, 2003, p. 39). The following terms were used within this study:

Blended learning. "Blended learning is a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and is at least in part supervised by a bricks and mortar location" (Watson et al., 2011, p. 17).

Enriched virtual model. The enriched virtual model includes courses that provide face-to-face sessions and allow students to do the remainder of the work from any location that they choose (Horn & Staker, 2014).

Flex model. The flex model requires that students attend face-to-face daily with an instructor present for instruction for both online and traditional learning. The flex model can be implemented with different variations of traditional support (Staker & Horn, 2012).

Flipped classroom. The flipped classroom requires students to receive teacher-directed lessons on campus during the regular school day and access online content and instruction from a different location after school (Staker & Horn, 2012).

Self-efficacy. Academic self-efficacy is defined as one's belief that they can perform successfully at selected levels (Schunk, 1991).

Self-regulated learning (SRL). SRL requires self-generated thoughts, feelings, and actions, which are purposely guided toward attainment of students' personal goals (Boekaerts, 1999).

Technology-rich instruction. Technology-rich instruction is traditional instruction enhanced with digital technologies such as interactive whiteboards, wireless devices, document cameras, online textbooks, and web resources. The content and instruction is not generally provided in this setting, and online resources are an enhancement of the curriculum. In classroom formats where the content and instruction are provided, the student still does not have control of time, place, path, and/or pace (Staker & Horn, 2012).

Traditional instruction. Traditional instruction requires that students are grouped by age and the age groups are promoted from one grade to the next. The students are given predominantly face-to-face instruction through lessons and demonstrations given by an instructor. The students are taught a single curriculum that is completed over the course of a year. Materials used for instruction are mainly textbooks, written assignments and lectures (Horn & Staker, 2014).

Overview of the Methodology

A quantitative research design was chosen for this study as it allowed the researcher to investigate statistical answers to research questions after data were collected. The current study was conducted using archival data acquired during the 2013-2014 school year from government classes (both blended and traditional) for four 9-week quarters. The population was 12th grade high school students in Maize USD 266 during the 2013-2014 school year. The sample consisted of students who were enrolled in a government course, either blended or traditionally taught. Three measurement instruments were approved for use in this study: Edgenuity online statistics reports, Skyward reports of end of course grades and attendance, and an end of course survey. The District Limited Application for Use of Open Records form seeking approval for the use of course grades, survey information, and Edgenuity statistical data to be used for this study is located in the appendix (see Appendix A). Additionally, the researcher obtained permission from Baker University to conduct the research. Once the data was collected, it was imported into IBM SPSS® Statistics Faculty Pack 22 for Windows for analysis.

Organization of the Study

This study contains five chapters. Chapter one included the background of the research study, problem to be studied, purpose of the research study, significance of the research study, delimitations, assumptions, research questions, definition of key terms, and overview of the methods of the study. Chapter two contains a review of the literature related to blended learning. Chapter three presents the research design, population and sample, instrumentation, measurement, validity and reliability, data collection procedures, data analysis and hypothesis testing, limitations, and a summary. Chapter

four includes the results of the hypothesis testing. Chapter five contains a summary of the study, discussion of the results, suggestions for action, recommendations for future research, and conclusion.

Chapter Two

Review of Literature

Traditional classrooms with face-to-face instruction have been the primary mode of instruction for students for at least 3,000 years. In 2001, 80% of student instruction was conducted in a traditional classroom setting (Singh & Reed, 2001). According to Watson et al. (2013), more than three-fourths of all districts across the country offer some type of online or blended courses. In a traditional classroom setting, it is the norm for students to be directed where and when to learn and to change topics of instruction at the sound of a bell. However, the twenty-first century has offered new and innovative online resources for learning and collaboration. Effective use of these online resources provides opportunities for major advances in quality, effectiveness, convenience, and even cost of educational experiences. Recently, learning experiences have evolved to include "blended" combinations of both traditional and online learning methods, which can have a positive impact on learning practices (Singh & Reed, 2001).

Educators now seek new approaches to instruction and student performance outside of the traditional learning model that offer more individualized instruction with comparable and possibly better results. Online learning advances the possibility of individualized instruction and a focus on interactive connections within the classroom. This concept permits instructors to help students make connections to learning and work at their own pace rather than feeling that they need to "cover material" (Singh & Reed, 2001). Rather than use the majority of classroom instruction to lecture over reading material, instructors can now divide student instructional time to allow them to think deeper, summarize, and analyze information. Using a blend of online resources is one

way to balance instructional time, reorganize curriculum, and provide deeper learning opportunities (Gullen & Zimmerman, 2013).

This chapter is divided into six sections that present a review of the literature relevant to blended learning. First, a brief overview of blended learning and the four models of blended learning is provided. Second, a review of the literature related to time spent learning is presented. Third, the subject of student achievement and blended learning is discussed. Fourth, student perceptions about learning in a blended learning classroom are presented. Fifth, self-directed learning is discussed. Finally, blended learning and student management skills are explored.

Blended Learning

Originally, the definition of blended learning often referred to a combination of traditional learning and online learning activities. Heinze, Procter, and Scott (2007) describe blended learning as learning that is carried out using a combination of different methods of delivery, teaching and styles of learning, and includes clear communications between the learners and instructors within a course. However, the term has evolved to include so much more. The Innosight Institute defines blended learning as

> a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home. (as cited in Staker & Horn, 2012, p. 4)

The phrase "with some element of student control over time, place, path, and/or pace" was added to distinguish blended learning from technology-rich instruction (as cited in Staker & Horn, 2012, p. 6). Ten years prior, Stahl (2002) clearly outlined the four

dimensions of time, place, path, and pace. Time means that learning is no longer limited to a traditional school day or school calendar year. Place refers to learning that is no longer limited to the traditional classroom. Path can be defined as learning that is no longer limited to the face-to-face strategies used by the teacher. Pace is described as learning that is no longer limited to the pace of the entire class, but is individualized. The second part of the definition states that the learning must be "supervised" and take place off campus. This is to make the distinction between students learning full-time online at a brick-and-mortar location and off campus such at the student's home or self-chosen location. An instructor in the classroom setting provides instructor supervision, rather than a parent or other adult responsible for the educational instruction of the student (Staker & Horn, 2012). As the concept of blended learning evolves, the definitions evolve as well.

There are many different forms of blended learning along with different definitions. Schools that are defined as blended schools are stand-alone schools that present most of their curriculum in a blended format. This means that students are required to attend physically at a site for activities other than just state assessments (Watson, et al. 2013). Technology has changed virtually every business in the world, and schools should be seeing results as well. The key is to demand adaptive, rigorous, mastery-based student learning (Vanderkam, 2013). Online learning within K-12 schools is growing both through virtual schools and within school campuses through blended learning. The number of students in full-time online schools is four times what it was in 2000, and grew by 50,000 to 250,000 in 2010 (Watson et al., 2011).

Four basic versions of blended learning that are often used: rotation, flex model, self-blend, and enriched virtual (Staker & Horn, 2012). Within the first version, rotation, there are four sub-categories of implementations: station, lab, flipped, and individual. A rotation program within a given course or subject operates in a way that students rotate on a timed schedule or at the teacher's discretion between different learning modalities, at least one of which is web-based or online. The first sub-category of the model is station rotation. The station-rotation model requires students move in groups from learning station to learning station. Station rotation can also be effective for small-group instruction, group projects, tutoring, and written assignments. The second sub-category is the lab model. This type of rotation model only takes place in face-to-face or brick and mortar campuses. This model utilizes a computer lab in combination with other classrooms for multiple learning opportunities. This rotation is different from the station-rotation because students rotate to areas outside of the classroom. The third sub-category is the flipped rotation. This involves students who rotate between teacher-guided instruction on campus during the school day and online content and instruction of the same subject from another location (such as home) after school. This model allows students to have control over time, place, path, and/or pace because the student chooses the location for online learning. The fourth sub-category is individual rotation. In this version, most instruction is provided online in an individualized and differentiated form, with adult support. Students rotate to a new station when the computer results call for a new learning mode (Staker & Horn, 2012).

Bernatek, Cohen, Hanlon, and Wilka (2012) reported the results of a case study at Alliance College-Ready Public Schools in Los Angeles, California regarding the

implementation of a lab-rotation approach. In this study, students in a Spanish II course participated in a model that required students to rotate between teacher-led instructional lessons, computer directed instruction, a rotation to work on collaborative projects and self-driven work on technology projects (Bernatek et al., 2012). The students rotated through four stations over a two-hour period. Results of this case study revealed important lessons for success when implementing a new instructional model of this type. One of the stations through which students rotated, the collaboration station, should be focused on promoting application of what students are learning. Too often, when students struggled, this station would revert to knowledge-based learning, which was intended for the computer station. Results indicated that more rigor should be implemented at this rotation. Another lesson learned was that the computer station needed to be better aligned to the other stations. The knowledge-level learning in the software needed to include the ability to fill learning gaps. A third important lesson learned was that students needed to have fast and always available wireless bandwidth. Instructional classroom formats that include technology should be equipped with enough bandwidth that students are able to access at any time (Bernatek et al., 2012).

A second version of blended learning is known as the flex model. Within the flex model, instruction is delivered almost entirely through the Internet and students move through the curriculum using individually customized modules with the instructor on site for support. The instructor or other adults provide support through small group instruction, group projects, and tutoring as needed. Some implement this version with more face-to-face support than others do (Staker & Horn, 2012).

A third version of blended learning is known as the self-blend or self-mixed model. Within this version of blended learning, students learn in classrooms with traditional teacher-led instruction, accompanied with online courses that can be completed during school or outside of the regular school day. Students self-blend some online courses and take others face-to-face with their teachers (Staker & Horn, 2012).

The fourth version of blended learning is enriched virtual or online enrichment in which students are enrolled in a full-time virtual school, with opportunities to meet with instructors periodically for tutoring, exams, or enrichment. Students in the enriched virtual version of blended learning seldom attend the brick and mortar campus. This model is a whole-school experience, not a course-by-course model similar to the self-blend model (Staker & Horn, 2012).

Blended learning is one of the few innovative trends in education that offers the potential to transform education. Blended learning, the artful combination of computerized instruction (personalized for each student) with small group instruction, offers students something closer to tutoring than traditional lectures do (Vanderkam, 2013). Linking traditional classroom teaching practices, such as immediate assessment and feedback to computerized results, is one way in which this innovative approach can transform education. The mix of the best digital and human teaching strategies is what makes the blend truly effective (Vanderkam, 2013). Blended learning classrooms provide more individualization and differentiation so that students can fill in gaps with computerized instruction. When a student gets frequent practice on a skill with constant feedback, this will lead to mastery (Vanderkam, 2013).

Blended schools have become an innovative hybrid of face-to-face and online learning. Studies conducted by the United States Department of Education show that positive outcomes have resulted from blended learning (Watson et al., 2011). One study conducted by the College of Education and Health Professions at the University of Arkansas at the Arkansas Virtual Academy School (ARVA) (Watson et al., 2011) compared math and literacy performance between students at the virtual academy using blended instruction and peers in traditional public schools in Arkansas using traditional instruction. ARVA students performed better in literacy and math in almost all grade levels, but strongest in literacy for grade four and in math for grade six (Watson et al., 2011).

In a study conducted in Pompeu Fabra University in Barcelona, students studying biology in their first year working in a blended environment were compared to first year biology students in a traditional learning environment. The study focused on blended learning and its effect on student grades and user satisfaction (Pereira et al., 2007). Results of this study indicated that the blended learning environment was more effective in these areas. Students showed improvement while studying the anatomy of the locomotor apparatus while utilizing the blended learning approach as compared to the traditional classroom environment. Eighty-seven percent of the students in the blended environment passed the exams on the first try while only 71.4% of the students in the traditional learning environment passed exams on the first try (Pereira et al., 2007). Kuh (2009) reported results of the 2008 National Survey of Student Engagement that states learners with online experiences developed more enriched approaches to learning and

used higher order thinking skills, integrative thinking, and reflective learning more than traditional learners did.

Rocketship Education is a charter elementary school that specializes in blended instruction in California. This school system serves mainly low-income students. During a sixteen-week study conducted by the Stanford Research Institute, students receiving five hours of online mathematics (rotation model) instruction along with mostly face-to-face instruction were compared to a group that received 22 hours online mathematics with less face-to-face instruction. After using DreamBox online mathematics software, the group of students who worked twenty-two hours on mathematics showed significant gains on NWEA's overall mathematics test and the measurement and geometry subtests. Rocketship differentiates the learning experience so that the curriculum is adapted to the student and helps them to master the skills they need to work on before they are allowed to proceed (Watson et al., 2011).

Time Spent Learning in a Blended Environment

According to Cavanaugh (2009), online learning puts the learner in control, therefore, changing the meaning of learning time. Students make the decisions on how much time is spent on each activity and when the time is spent on the activity. This helps learners to expand their learning, as they need it while working in the course with teacher support. When a course is self-paced and flexible, students learn to complete the course at a pace that holds their interest and at a faster completion rate. Increased time on task has been associated with improved student learning (Cavanaugh, 2009). Examples of ways that have been shown to increase time on task include homework and increased engagement. Blended learning is a potentially powerful way of learning because it could

change the quality of student time spent learning. Online learning additionally allows class time to focus on teacher-student interactions (Lovett, Meyer, & Thille, 2008).

In a study conducted at the University of Tennessee, 26 physicians from the Physician Executive MBA (PEMBA) program in the College of Business Administration, it was found that programs that were blended allowed students to finish the courses in approximately half the time using live online interaction, self-paced, and face-to-face classroom instruction (Dean, Stahl, Sylwester, & Peat, 2001, p. 252). This formal study linked to progress from learning online rather than progress that is equivalent to traditional learning was the first to be published.

In a study conducted at New York City's School of One, a model of individualized and differentiated learning using software known as The Cognitive Tutor was investigated. This software was used because gains had been shown with 400 ninth-graders in Moore, Oklahoma in an Algebra 1 course (Morgan & Ritter, 2002). The students used the software three days a week to work independently and with teachers or with other students during the remaining two days. Morgan and Ritter (2002, p. 3) conducted a study as a true experiment "with students randomly assigned to either the Cognitive Tutor Algebra I course or a traditional Algebra I course. To control for teacher effects, some teachers taught both traditional and Cognitive Tutor courses." Morgan and Ritter reported that students using The Cognitive Tutor could learn the same amount of material in 12% less time than their peers.

Anderson, Conrad, and Corbett (1989) found that students learn to do something well if it is something that they practice doing. They also found obvious but important conclusions when studying how students learn. They found that remedial feedback

produces long range learning benefits, explanation helps students correct mistakes, and delayed feedback causes students to take longer to learn the material. In later studies by Ritter, Anderson, Koedinger, & Corbett (2007), technology such as the Cognitive Tutor was used to provide timely feedback. In a study by Lovett et al. (2008), college students who participated in an accelerated learning study were asked to use online learning in the place of traditional classroom instruction. This study was a part of an Open Learning Initiative, an open educational resources project located at Carnegie Mellon University. There were several studies conducted through this initiative, mainly studies to compare the experiences of students enrolled in a statistics course as a stand-alone online course and students who were enrolled in the statistics course in a traditional classroom. Results of final exams showed no significant difference in student success (Lovett et al., 2008). However, in 2007, the authors modified to study to explore a blended approach, combining online with face-to-face and compared to a traditional classroom approach (Lovett et al., 2008). The results of the 2008 study showed that students in the blended environment learned an entire semester of curriculum in half as much time than students who participated for a full semester using traditional instruction. Results also revealed that the students using the blended approach performed just as well or better than their peers did in the traditional classroom (Lovett et al., 2008). Online opportunities to practice new learning were more prevalent than is likely in a traditional classroom setting. Students were required to practice and reflect in different situations throughout the learning experience. In the end, students learned 15 weeks of course material in eight weeks.

Student Achievement and Blended Learning

Several case studies that analyze student performance between traditional and blended learning instruction have been compared (Englert, Zhao, Dunsmore, Collings, & Wolbers, 2007). Students participating in a learning experience with both physical face-to-face learning and online learning in combination with immediate feedback and collaboration time with peers resulted with evidence that a mixed mode of instructional delivery enhances the quality of learning (Singh & Reed, 2001). This research showed evidence that blended strategies provide more of what the learner wants to learn and what the learning program has to offer and therefore improves overall learning.

A meta-analysis of research conducted by Means et al. (2013) compared 45 studies involving blended or online learning and face-to-face learning. Students in the studies ranged in age from 13 to 44. Results indicated that students in blended learning environments performed significantly better than did students in face-to-face environments while students in purely online learning environments did not (Means et al., 2013).

Research by the University of Tennessee's Physician's Executive MBA program noted earlier as showing results that students could learn information in a shorter amount of time. This research also showed that students learning from blended teaching methods actually performed 10% better than students learning from traditional methods alone did (as cited in Singh & Reed, 2001). Studies of this type previously have shown no significant difference, but this study was the first to show statistically significant improvement from blended learning methods (Al-Saai, Al-Kaabi, & Al-Muftah, 2011).

Garrison and Kanuka (2004) studied the potential of blended learning and its impact on higher education. This position paper presented the merging of technology integration with the most desirable properties of face-to-face learning resulting in the best of both worlds. The authors of this study found blended learning to have the potential to provide deeper learning experiences. Learning experiences have been shown to be more effective and efficient using blended learning (Garrison & Kanuka, 2004).

In a study conducted by Englert, Wu, and Zhao (2005), blended learning took place in an upper elementary classroom in Michigan with 12 students with special needs. These researchers sought to determine whether learning disabled students benefitted from web-based scaffolding on writing assignments. The software used in this research was designed to prompt student's attention to the organization and structure of ideas while writing. Student performance was compared between using web-based tools and the tools used in the traditional setting in pencil and paper format. Students who used web-based support produced significantly higher scores on the primary traits related to writing quality (Englert et al., 2005). The papers written were lengthier and were rated to be of higher quality.

In a meta-analysis of more than a thousand studies of online learning from 1996 to 2008, Means, Toyama, Murphy, Baki, and Jones (2009) reviewed four areas. Experts compared online and face-to-face conditions. After measuring learning outcomes, 51 different effects were found that could be utilized in the meta-analysis. The results of the meta-analysis showed that students learning using online tools outperformed those receiving traditional face-to-face instruction. However, the analysts found that the

positive outcomes related to blended learning could be associated with additional learning time and not necessarily, the media used (Means et al., 2009).

Another question addressed within the meta-analysis compared 46 studies over evidence-based practices in online learning demonstrated an even split between college students and students who were younger. The number of participants in each study ranged from 16 to 1,857. Most of the studies had smaller numbers of participants. The findings of this research suggested that online and blended courses resulted in higher student outcomes than traditional learning only. When broken down, effectiveness was found to be equivalent between blended and traditional instruction while it was found that blended instruction actually enhances learning over traditional instruction ((Means et al., 2009).

The U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES) (Gray et al., 2010) conducted a meta-analysis that reviewed research on blended learning. Gray, Thomas, and Lewis found that students were inclined to have better results within blended learning courses than in traditional face-to-face classes. Additionally, learning outcomes for purely online instruction were comparable to those of purely face-to-face instruction. The results of this meta-analysis suggested that the effectiveness of online learning is quite stable across different content and learner types. Effectiveness did not vary significantly with learner age or content area.

Baki, Shear, Toyama, and Lasseter (2012) from the West Virginia Virtual School compared seventh and eighth grade students' scores in blended and traditional Spanish courses over a period of three years. The blended students' scores were compared with

students' scores using a traditional design with the same curriculum. Students taking part in the blended design lived in remote areas that otherwise would not have the availability of course offerings such as Spanish unless provided in this way. The blended team of teachers included a certified Spanish teacher who was responsible for creating the daily lessons and conducting weekly phone conversations with the classes; another certified Spanish teacher who was an adjunct teacher who provided email and audio feedback by means of voicemail for graded projects; and a third instructor who was a certified teacher but not a certified Spanish teacher. The third instructor facilitated student instruction on site to make sure those students stayed on task and completed assignments on time. Results of the study indicated that more students who participated in the blended learning course were motivated to continue learning Spanish in high school (Baki et al., 2012). Student test scores on multiple-choice, written, and oral exams over Spanish comprehension showed no significant difference in student achievement between students who participated in the blended learning course and those who did not.

In another study (Barth, Hull, & St Andrie, 2012) at the University of Arkansas, students in an Arkansas Virtual Academy were compared with traditional school peers in grades three through six. Results of the study found that the virtual students' scores were significantly higher than their non-virtual peers' scores were. Student scores were 9.6 percentile points higher in math and 3.6 percentile points in literacy when compared over two years (Barth et al., 2012).

Student Perceptions of Blended Learning

In a 2003 study conducted by Vesely, Bloom, and Sherlock (2007), student perceptions of blended learning communities within online courses at Western Carolina University were analyzed. The students in the blended learning communities felt that they performed better and learned more course material. Eighty-five percent of students reported that being part of a learning community assisted them in better performance and learning. Ninety-four percent of students reported that they experienced a sense of community while taking their online course. Students need to feel that they are part of the online community and not simply present online to acquire and use course material (Vesely et al., 2007). Students agreed that learning communities must be structured and supportive environments that are given purposeful, intentional interaction among its members. A level of trust, respect, and support must also be present among the members in order for the learning to thrive (Vesely et al., 2007).

The results of Vesely et al. (2007) determined that even in collaborative online environments that require students to participate in discussions and online problem-based learning activities, it is still important for the instructor to have a presence in the course. They found that the instructor's role was to design and facilitate activities that promote the development of an online community rather than personal modeling (Vesely et al., 2007). The instructor's role is to provide leadership and guidance by modeling appropriate responses on the discussion board. The instructor gave students a model to follow when providing constructive feedback and insightful postings. Instructors who were available to discuss concerns online also modeled community behavior for students. An important factor in developing an online community is student interest in the course

material. Students reported that involvement in the community could be difficult when there is a lack of immediate feedback and difficulty reading nonverbal cues. Students perceived that self-discipline was also a factor that could be difficult when working online, even in a community. However, respondents felt that forming an online learning community was an environment in which it could be easier to communicate with the instructor and classmates at the same time.

According to Allen and Seaman (2011), two-thirds of college-level instructors felt that online learning could be as good as face-to-face instruction. This meant that one-third still believed that face-to-face learning is superior to online learning. However, these opinions reversed when academic leaders were asked which mode of learning allowed for more differentiation and individual learning. Nearly 80% agreed that online learning allowed them to do this. When probed further, it was found that the main reason why academic leaders that did not prefer online instruction or blended instruction over face-to-face instruction was because of the lack of student-teacher interactions. Academic leaders at colleges that offered a greater number of online offerings were more supportive of the benefits of online and blended instruction than those that had fewer offerings. When students were asked about which types of courses supported their individual learning styles, interactions with facilitators and preference of presentation of learning materials, they responded that both online and face-to-face course structures provided these things in "about the same" way (Allen & Seaman, 2011).

Student perceptions have indicated that blended learning can be more effective than traditional teaching (Gecer & Dag, 2012). Sixty-seven freshman students in the departments of mathematics and primary school education enrolled in Computer II

courses at Kocaeli University participated in a study that compared experiences in traditional classroom settings and blended classroom settings. Students were asked to complete a questionnaire at the end of the courses. A majority of students involved in this study pointed out that the projects in blended learning environments increased their learning responsibilities. Students also stated that this caused them to take more responsibility for their learning. Students indicated they enjoyed presenting their weekly work online. Their perceptions also revealed that they felt that they could control their own learning in the blended learning environment. They also added that the applications that they did online seemed to make their learning more permanent (Gecer & Dag, 2012).

In a study conducted by Jochum (2013), 19 students enrolled in a blended Spanish grammar course at the University of Nebraska participated in a study to determine their perceptions regarding blended learning. Seventy-five percent of the students reported that they felt they learned more in this format because it allowed them to focus on more content during the face-to-face portion of the class and work at their own pace to complete the online components. Students enjoyed having the freedom to work independently on course assignments and to be a part of an online community (Jochum, 2013).

Self-regulated Learning in a Blended Environment

Self-regulated learning can be defined in terms of one's thoughts, feelings, and actions that drive persons to achieve their own goals. Self-regulated learners tend to have a positive influence over their own learning processes (Schunk & Zimmerman, 1997). The concept of self-regulated learning theory developed from Bandura's (2001) social-cognitive learning theory. Self-regulated learning theory focuses on the transition from

the dependent to the self-directed learner (Bandura, 2001). Students who are already able to self-regulate their learning in computer-based learning environments (CBLE) are more likely to acquire an understanding of complex topics, while those who are not capable of self-regulation are not likely to succeed in a CBLE. Success in school requires that students develop self-regulation skills, which are processes that enhance learning and positive behaviors, and are goal oriented (Zimmerman, 2002). Pintrich and Zusho (2002) (as cited in Schunk, 2005) described this definition of self-regulated learning as an active and productive practice requiring students to be active and goal-directed and show self-control of behaviors, drive, and understanding. Traditional classroom environments provide instructor guidance and structure whereas online academic learners are required to take more control over their own progress. Students who are able to self-regulate their learning are inclined to outperform students who do not (Zimmerman, 2002).

In 1999, the Communication and Journalism Department at the University of Wisconsin participated in a study to evaluate learning styles and asynchronous learning while in a blended learning course. Twenty-eight undergraduate university students in the communication and journalism department participated in the study (Loomis, 2000) comparing learning styles in an online environment and a traditional learning environment. Five of the 28 students enrolled in the online section dropped the course by the time the mid-term exam was required. Since online courses require a greater amount of self-directed learning, it would make sense that students with poor study skills tend to drop out of online courses. Attitude and inability to determine main ideas were the two study skills responsible for high dropout rates in online courses (Loomis, 2000). Results of this study indicated that students who were better self-regulated learners were more

successful in the course. Students with good time management and study skills reported that their learning increased because the curriculum was available to review as many times as needed. These students also commented that the course was supportive of time schedule constraints. However, students who did not have self-directed study skills commented that procrastination was more evident and that more structure was needed in order for them to be successful. Procrastination and the inability to determine main ideas without face-to-face instruction hindered many students enough to drop the course (Loomis, 2000).

According to Diaz (2000), high online dropout rates do not necessarily mean that the students that drop out are academically unsuccessful. While conducting a study to compare dropout rates between traditional and online students in a college-level health course, Diaz (2000) found that student-learning styles could an important role in the success or failure to succeed in online courses. Although the dropout rate in online classes was nearly twice the rate of those in the face-to-face classes in this study, Diaz (2000) reported that this could be due to a false sense of success in the traditional course. Students taking traditional courses may have the impression that they are progressing because they attend class regularly (p. 96). These students are more likely to wait too long to drop the course. There is no false sense of security experienced within the online courses, so students may drop when they see that they are struggling in the course.

In 2001, Lynch reported that dropout rates were 35% to 50% in online courses compared to only 14% in traditional courses. This study was conducted in a small, private, urban university comprised of approximately 5,000 students. Students interviewed in this study reported that they felt socially isolated and that they could not

troubleshoot technical problems on their own (Lynch, 2001). CBLEs are most effective when students can self-regulate their own learning (Greene, Moos, & Azevedo, 2011).

Several researchers have found that students are more successful learners when they engage in SRL (Zimmerman, 2002). While there are students who are naturally self-regulated learners, it is believed that those who are not can be taught to be more self-regulatory. Results indicate that instructors can promote self-regulated practices (McLoughlin, 2002; McMahon & Oliver, 2001).

Instructors that build online courses can help students build self-regulatory learning by implementing various instructional strategies. Many of these strategies have been shown to increase student motivation and self-efficacy as well as meaningful learning experiences in both traditional and online environments. Researchers have focused on what students needed to know about themselves in order to manage their limitations during efforts to learn (Zimmerman, 2002). In an interview with Anita Woolfolk (as cited in Shaughnessy, 2004), teachers who work to help students increase self-regulatory skills should understand that teachers, parents, and classmates have a role in the development of students' academic confidence and can help to create experiences that encourage the self-belief that leads to self-regulatory skills. Additionally, Shaughnessy (2004) stated that self-efficacy and self-regulated learning strategies can be reinforced by modeling, creating mastery experiences (such as daily routines so that students know what to expect), verbal persuasion, (honest, positive feedback), physiological arousal (make directions clear and easy to find), and actually teaching self-regulation strategies (such as introducing an easy-to-implement strategy and applying them to a new skill that has been practiced over and over). Two specific approaches that

are suggested for online instructors to help develop self-regulatory learning included helping learners to identify and set challenging and realistic goals as well as providing students with timely and honest feedback (Artino, 2008).

Barnard-Brak, Paton, and Lan (2010) conducted a study measuring self-regulation in online and blended learning environments at the university level. In this study, 434 students enrolled in blended courses from liberal arts and business departments. The study was conducted a second time with 628 unduplicated students from various online courses. Analysis of the questionnaire responses indicated that the blended and online course formats increased the development of self-regulatory skills (Barnard-Brak et al., 2010).

Bernatek et al. (2012) supported these findings in a case study on a district-wide self-directed blended teaching and learning approach at Summit (California) Public Schools. This study sought to address the student, teacher, parent, and administrator experiences that Summit implemented. Students in this study were given a "roadmap" of what their focus for the school year would be with content standards or "focus areas" that were required. They were shown how to set goals, create a plan for assessment and reflect to guide further goals. Personalized Learning Time during school was implemented within this plan to allow the student to work alone to learn knowledge level information. The students were then expected to participate in "project time" with instructors in an attempt to engage students in deeper learning experiences to help them develop cognitive skills. Project time was intended to give students the opportunity to apply self-directed learning to challenges in group settings. Each student received a mentor or coach to guide students in the process. Mentors enforced the five behaviors of

self-directed learning: challenge seeking, persistence, strategy shifting, appropriate (help seeking), and response (to setbacks) (Bernatek et al., 2012). The teacher's role in preparing students for self-directed learning was to facilitate project-based learning and to coach and mentor students. Facilitation was provided to assist students as they synthesize and interpret through projects. Teachers spent time with each student to develop individual goals and to provide feedback on progress (Bernatek et al., 2012). Parents were educated to understand why self-directed learning was so important for success. Because the process was so very different from the way most parents had been taught, it was essential to help them understand the benefits of instruction in this way. Parents were invited to attend parent nights and were recipients of different modes of communication that keep them abreast of what is happening in school (Bernatek et al., 2012). School leaders worked to instill a strong understanding of self-directed learning and worked to move teachers from "instructor directed" lessons to self-directed blended learning. A focus on creating a self-directed environment, alleviating panic, and building supports and behaviors were key strategies for administration in this study. After three years, results of this case study showed five lessons learned. The first lesson was that adults need to be able to step back and allow students to solve problems. The second lesson was that adults need to know when it is time to step in and support students and how much support should be given. The third lesson was to trust the self-directed learning model and to keep from moving back to traditional teacher-directed methods. The fourth lesson was to be deliberate when guiding students to be self-directed learners. The fifth lesson was to instill in students the use of technology.

For educators, it is important to not only meet specific objectives but also develop a learner's self-regulatory skills (Vanderkam, 2013). Self-direction is intrinsic, but technology helps to make the process more achievable (Wilka & Cohen, 2014). According to Wilka and Cohen (2014), it is important to learn to let go of control, but also know when to step in and support a student. Students need help learning the skills to self-regulate and while self-direction is not a new concept, technology can make it easier.

A study conducted at the University of Wisconsin-Milwaukee School of Information Studies (Haugh, 2007) compared survey responses regarding the development of time management skills of online and face-to-face students. Results showed that students did not feel that online experiences affected the ability to manage deadlines more effectively. However, these findings differed from that of Oliver, Domingo, Hunter, Pan, and Gourlay (2014). Oliver et al. (2014) actually found that self-regulation of student behaviors can be enhanced by taking online courses. They found that students who are responsible for completing assignments online use better time management skills. Researchers conducting this study found respondents of a survey administered after participating in online or face-to-face courses found that time management skills appeared to be improved as a result of taking online courses.

Successful Online Learning

Those who have engaged in online courses or courses that contain online components understand that self-regulated learning (SLR) is essential for success (Artino, 2008). This means that they must be able to decide when and how long they work online (McMahon & Oliver, 2001). Students who do not have effective SRL abilities should be taught how to develop these processes and then utilize them frequently so that they can

engage in the SRL process of planning, strategy uses, and monitoring their own progress (Greene et al., 2011).

Learning styles play an important factor within the success of online learning. Gardner, a Harvard psychologist and researcher, found evidence in the 1980's of eight intelligences that most people learn within; linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical interpersonal, intrapersonal and naturalist (as cited by Christensen, Horn & Johnson, 2008 p. 26). Although most have the capability to learn through any of these intelligences, "most people excel in only two or three of them" (Christensen et al., 2008 p. 28). According to Christensen et al., although people have different strengths within the learning styles, there are also learning preferences that come into play. Within each intelligence, there is another aspect of learning that includes learning pace at which people learn (Christensen et al., 2008). The definition of blended learning states, each "student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace" (Watson et al., 2011, p. 17). Individual student pace is an important part of the implementation of blended learning.

Diaz (2000) conducted a study with 231 students in a college-level health education course. Successful online students (those that earned a course grade of a "C" or higher) were more independent learners than those that were not successful (those that earned a "D," "F," or withdrew from the course). In this study, online students outperformed traditional students. Students that found success in the courses within this study self-selected the structure of the course in which they participated. Results of this study indicated that students who preferred self-directed learning structures chose to

participate online (p. 92). Traditional students chose to take the traditional course. In this study, the online students earned twice as many grades of an A while the traditional students received twice as many grades of "D" and "F" (p. 99).

Motivation. Although some motivation is necessary to learning, no matter the content, it is more important when learning online. "Motivation is the catalyzing ingredient for every successful innovation" (Christensen et al., 2008, p. 7). Students must decide where, when, how, and how long learning will take place (Sansone, Fraughton, Zachary & Heiner, 2011). Students who use online learning in some form must learn the material and maintain the motivation to learn the material on their own. Face-to-face instructors are not present to prompt and guide self-regulation (e.g., how to monitor progress). In *Disrupting Class*, Christensen, Horn, and Johnson, (2008) note that it is important to find out what motivates students to do jobs that they need to do. Students want to "feel successful and make progress, and they want to have fun with friends" (p. 169). Many students find these things within extracurricular activities. An integration of online learning can provide student-centered learning while at the same time allowing students to also feel successful, make progress, and collaborate with their friends (Christensen et al., 2008).

Self-regulation of motivation. Another way to build self-regulatory learning was investigated in a Self-regulation of Motivation (SRM) model to understand how self-regulation and motivation are affected when learning online. Sansone et al. (2011) found that it is important to develop engaging online lessons in order to prompt students to stay motivated within the class and therefore self-regulate their own learning. The results of the study determined that by adding optional features that were engaging, many students

participated in further learning. However, it was also found that optional features could allow for time spent on learning that was not necessarily an educational outcome for the course. Therefore, it is necessary to create a balance between lessons that offer motivating optional features that encourage self-directed motivation and lessons that focus on the explicit outcomes based material to which students would be exposed (Sansone et.al., 2011, p. 210).

Self-efficacy. Effective self-regulation depends on feeling self-efficacious for using skills to achieve mastery (Schunk & Zimmerman, 1997). As the student works, goals are compared to performance. Self-efficacy is enhanced by using self-evaluation processes, which provides motivation to improve. Those with self-efficacy to learn are more inclined to implement self-regulatory strategies, such as time management, asking for assistance and feedback, and making adjustments as they need to (Schunk & Zimmerman, 1997). Zimmerman (2002) reported that self-regulatory learning is not something that people have or do not have. Self-regulatory learning involves the careful use of particular processes that must be adapted to each learning task through one's own discretion.

> The component skills include: (a) setting specific proximal goals for oneself, (b) adopting powerful strategies for attaining the goals, (c) monitoring one's performance selectively for signs of progress, (d) restructuring one's physical and social context to make it compatible with one's goals, (e) managing one's time use efficiently, (f) self-evaluating one's methods, (g) attributing causation to results, and (h) adapting future methods. (as cited in Zimmerman, 2002, p. 66)

Beliefs in self-efficacy are likely to change during the development of skills when individuals are faced with challenging tasks. When students experience improvement while achieving these tasks, over time, a boost in self-efficacy will occur (Bandura, 2001). Students also can build self-efficacy through observing others achieve (Usher & Pajares, 2008). Arslan (2012) supports these claims as a group of 6th to 8th grade students from primary schools located in Eregli, Zonguldak Province of Turkey took part in a study to evaluate self-efficacy beliefs among students. The results of his study determined that students' self-efficacy beliefs could be strengthened mostly by verbal encouragement and accomplishments (Arslan, 2012, p. 1).

Self-regulation processes. Azevedo, Cromley, Moos, Greene, and Winters (2011) interviewed students involved in learning through CBLEs and collected results from other studies, e.g., Greene and Azevedo (2009), and found over 30 specific processes that are engaged while learning through CBLEs. He found that students who are able to self-regulate their own learning with CBLEs were more able to gain an understanding of difficult topics, and those who cannot self-regulate effectively are not likely to learn. Azevedo et al. (2011) also found that students who do not naturally implement self-regulatory processes should be taught how to use the processes most beneficial to them and implement them often. This could help them to engage in planning, using strategies, and monitoring their own learning (Greene et al., 2011).

According to research conducted by Azevedo et al. (2011) if the CBLE is too difficult to understand or navigate, even students who are effective self-regulators may not self-regulate as well. Learning difficult topics with CBLEs can be effectively carried out using adaptive human or computerized scaffolding, which would provide support for

content and cognitive processes to understand the information. As students become more familiar with this process, the scaffolding can be faded out to be true SRL. This adaptive scaffolding has been shown to be effective in guiding the students understanding of concepts targeted to the individual learner (Azevedo et al., 2011).

Self-regulation phases. According to Zimmerman (2002), research has revealed that in order to acquire new knowledge using self-regulation, one must possess self-awareness, self-motivation, and behavioral skills. Research does not tell us that regulation of learning is a trait that a person possesses or does not possess. The quality of self-regulation within a learner is dependent on beliefs such as efficacy and intrinsic interests.

Schunk (2005) proposed three phases to the model of self regulation including forethought and planning, performance monitoring, and self-reflection. Forethought means to set goals before learning occurs and to activate pertinent prior knowledge and planning as well as determining the amount of effort that it will take to accomplish the task. The monitoring phase requires the learners to be aware of their own thoughts, motivation, and behaviors during learning (Schunk, 2005, p. 86). Students will use these strategies in order to make progress. When the student starts to see results because of this, motivation to continue the task grows. Performance can be further broken down into two subcategories: self-control and self-observation. When referring to "self-control, the deployment of specific methods or strategies selected during the forethought phase" are used such as imagery, task strategies, self-instruction and attention focusing (Zimmerman, 2002, p. 68). Self-observation means to self-record events of one's own doing and self-experimentation to find out why those events occurred. The third phase,

self-reflection, requires looking at one's own performance and creating ideas of what changes are needed to learn the information better the next time. During each phase, self-regulated learners combine these strategies to control individual processes of learning (Zimmerman, 2002). Blended learning can help to shift learning from being teacher centered to student centered (Vanderkam, 2013).

Self-directed learning strategies. Schunk and Zimmerman (1997) and Zimmerman (2002) found four levels to attaining self-directed learning skills in the research. The first level requires students to acquire knowledge of learning skills by observation. The second level requires the student to use the skill, known as imitation. The third level of attaining self-directed learning skills is to internalize the skill, known as self-control. The fourth level, which is applying skill by adapting it to the student's work, is self-regulation. The motivation shifts from social to self-regulated (Schunk & Zimmerman, 1997; Zimmerman, 2002). Instructors can design courses using strategies that can also help students improve self-regulated learning. Examples include requiring students to keep a learning journal, participate in discussion boards at certain times during the week, or create collaborative projects assigned online (McMahon & Oliver, 2001).

While self-regulation of learning plays an important part of success in learning, an interdependent interface of curriculum and software used is essential in allowing learners to use their self-regulation skills effectively (Christensen et al., 2008). "When there is an interdependent interface, integration across that interface is essential" (Christensen et al., 2008, p. 30). In other words, the curriculum and its online components must be easily understood and easy to follow while allowing adjustments to be made by the instructor.

In a study conducted by Tsai (2011), SRL strategies were taught to help 221 undergraduate college students in a course titled ‘‘Applied Information Technology: Networking’’ to develop regular SRL habits and enhance learning in a blended environment. The course was a semester long course in Taiwan. The results of this study emphasized the importance of the teacher's role in implementing self-regulated learning strategies. Strategies used by the teacher to help students to learn to manage their own learning included strategies of reviewing notes and keeping records. Students were required to take notes in class and review the notes and visual aids after school. Assignments were posted online and deadlines were set. Students were required to submit the assignments before the stated deadlines. Results of this study showed that students who received the intervention of SRL attained significantly higher grades out of four classes involved in the study (Tsai, 2011).

Summary

In chapter two, relevant literature related to blended learning was identified and reviewed. First, an overview of blended learning was briefly reviewed, which provided background information about the evolution of blended learning and the different types of blended learning. Next, the literature related to time spent learning in the blended environment was explored. Third, the relevant literature related to student achievement within the blended learning environment was examined. Fourth, the literature related to student perceptions toward blended learning was identified. Following student perceptions toward blended learning, self-regulated learning in a blended environment was reported. Last, the literature related to success in an online learning environment was discussed. Chapter three presents the research design, population and sample,

sampling procedures, instrumentation, data collection procedures, data analysis and hypothesis testing, limitations and summary.

Chapter Three

Methods

The focus of this research study was to examine the differences between students in traditional and blended government courses regarding time spent learning, course grades, whether or not they enjoyed the course, whether they would take another blended course in the future, and whether they would recommend a blended course to others. This study also focused on student perceptions of their ability to learn on their own and their development of time management skills in a course taught using a blended learning approach compared to a course taught traditionally. This chapter covers detailed information about the methods used in conducting this research. Topics included in this chapter are research design, population and sample, sampling procedures, instrumentation, measurement, validity and reliability, data collection procedures, data analysis and hypothesis testing, limitations, and a summary.

Research Design

Quantitative research is used to assess theories by studying the connections between variables (Creswell, 2003). The first dependent variable was time spent learning. The second dependent variable was course grades. Other dependent variables included in the study were students reporting that they enjoyed the course, likelihood a student would take a blended course in the future, likelihood a student would take an online course in the future, likelihood of a student recommending the course to others, students reporting that they are able to be self-directed learners and student perceptions of time management skills. The Independent variable in the study included the course format, blended or traditional learning environment.

Population and Sample

The population for this study was 209 high school students enrolled in a government courses in two high schools in a suburban Midwestern district. Students in each school were given the opportunity to choose between two class structures. Both the blended government courses and traditional government courses were taught by the same teacher in each school. One hundred thirty nine government students participated in the blended learning environment and seventy government students participated in the traditional learning environment.

Sampling Procedures

Non-random sampling was employed to explore the value of the independent variable. Purposive sampling requires "selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (Lunenburg & Irby, 2008, p. 175). Students were given the opportunity during Fall enrollment to enroll in either the traditional learning environment or blended learning environment. All students are required to take government during their senior year. Rosters were obtained through the Skyward software by the researcher. Students during the 2013-2014 school year were selected as participants met the following criteria: high school government students enrolled in the traditional setting and high school government students taught in a blended setting within Maize USD 266. The research survey was distributed to high school government students enrolled in the blended learning environment and government students enrolled in the traditional learning environment in the two high schools within Maize USD 266 at the end of each nine-week term offering of the course: Term 1, Fall 2013; Term 2, Fall 2013; Term 1, Spring 2014; and Term 2, Spring 2014.

Instrumentation

Three measurement instruments were used for this study: Edgenuity online statistics reports, Skyward reports of end of course grades, and an end of course survey. Edgenuity generates a report titled *Attendance Log* that allows teachers and administrators to measure time spent learning online (Bailey et al., 2013). Skyward software is the administrative online grading tool that teachers use to record course grades. Grades in all government courses were recorded as a percent earned out of 100 percent. Grades were calculated with Skyward administrative software after input by course instructors.

The online student survey administered by Maize USD 266 at the completion of the course was used in this study. The survey contained 42 questions and was created and administered in Google Forms. Students accessed both course formats in the survey by clicking a link placed in Blackboard by their instructor during traditional course meeting time. The survey can be found in Appendix B. The researcher developed the survey for Maize USD 266 to determine whether the blended course structure should continue to be implemented. The survey was accessed by blended and traditional government classes at the end of each term online in each student's Blackboard LMS course.

The first section of the survey consisted of four questions regarding demographic information and one regarding enjoyment of the course. The first four questions were drop-down questions that required students to click on the correct answer.

- My government course was
    - Blended (Mon-Wed-Fri)
    - Face-to-face (Mon-Friday)
- I am
    - Male
    - Female
- I attend
    - MSHS
    - MHS
- Government Term
    - Term 1 Fall 2013 (block 1)
    - Term 1 Fall 2013 (block 2)
    - Term 1 Fall 2013 (block 3)
    - Term 1 Fall 2013 (block 4)
    - Term 2 Fall 2013 (block 1)
    - Term 2 Fall 2013 (block 2)
    - Term 2 Fall 2013 (block 3)
    - Term 2 Fall 2013 (block 4)
    - Term 3 Spring 2014 (block 1)
    - Term 3 Spring 2014 (block 2)
    - Term 3 Spring 2014 (block 3)
    - Term 3 Spring 2014 (block 4)

- Did you enjoy taking this Government course?
    - Yes
    - No

The second section of the survey contained two questions that the students were asked to rate on a 5-point Likert-type scale: (1) *Extremely Unlikely*, (2) *Quite Unlikely*, (3) *Slightly Likely*, (4) *Quite Likely*, and (5) *Extremely Likely*. Students were asked the following questions in this section:

How likely are you to

- Take a blended course in the future?
- Take an online course in the future?

The third section of the survey was set up with a 4-point scale: (1) *definitely not true*, (2) *somewhat true*, (3) *mostly true*, (4) *definitely true*. The question was *To what extent is it true that the government class has been helpful* in the following areas: Think critically and analytically?

- Work effectively with others?
- Learn effectively on your own?
- Understand yourself and your learning needs?
- Manage your time?
- Prepare for online learning courses?
- Retain information about this class?
- Understand course concepts?
- Connect to your life?

The fourth section focused on the extent of work that the government class provided. This section required the students to rate questions on a 5-point Likert-type scale: (1) *Never, (2) Rarely,* (3) *Occasionally,* (4) *A moderate amount, and* (5) *A great deal.* Students were asked, *to what extent have you*

- Worked harder than expected
- Applied a lot of effort in government work
- Had opportunities to apply creativity in government assignments
- Been challenged to do your best work in class
- Had to spend a lot of time studying
- Worked on an assignment or project using information from several sources
- Spent time preparing for class
- Asked questions in class
- Participated in discussions in class
- Created a presentation assignment in class
- Collaborated with other students on projects for this class DURING class
- Collaborated with other students on projects for this class OUTSIDE of class (friends, family, etc.)

The fifth section included questions related to the dependent variable of time management. When asked "approximately how much time did you spend outside of this class per week working on government assignments?" students made choices using the following: (1) *less than two hours,* (2) *2-4 hours,* (3) *more than four, and less than 6 hours or* (4) *more than 6 hours*. When asked the question, "how often were you able to get assignments completed by the due dates?" which related to the dependent variable of

time management skills were coded using a four point Likert-type scale*:* (1) *never*, (2) *sometimes*, (3) *usually, and* (4) *always.* There were also three no/yes questions relating to the variable of time management skills measurement.

- Did this class help you to organize your time in a way that has helped you to complete assignments on time?
- Did this class help you to manage your time more effectively?
- Did this class help you to prepare for time management challenges in future courses?

The final part of the survey included questions related to student perceptions of self-regulated learning, organization, and future implications. Students were asked

- Would you recommend this course to other students? (yes/no)
    - If yes, why and if no, why not? (open ended)
- What, in your opinion, would make this course better? (open ended)
- What was most difficult about this course? (check all that apply)
    - Using technology/internet
    - Organizing my time to get assignments done
    - Assignments
    - The quizzes
    - The tests
    - Other _____
- What did you like about the curriculum? (open ended)
- What did you dislike about the curriculum? (open ended)
- Was the course what you expected? (yes/no)

- Why or why not? (open ended)

Measurement. This section includes information about the measurement of all of the variables. The information is organized in the order the research questions were listed previously. The category labels and the numbers used in the data analysis are specified for each variable.

Research question one included one dependent variable, time spent learning between government students in the traditional learning environment and students in the blended learning environment. Edgenuity is the curriculum software that was used to provide instruction for the online portion of the course. Edgenuity contains a report titled, "attendance log" which records the amount of time each student spent in the course working. A sample of this report can be found in the appendix (see Appendix C). Edgenuity allowed the researcher to generate a report called Attendance Log Report that contained minutes that students worked online. The log also contained minutes that students were idle online. This report allowed the researcher to view detailed archival statistics on online usage for the course learners. Time spent in the classroom was 87 minutes per day for all students, whether in the blended course or in the traditional course. Time spent learning was generated for the traditional course by taking 87 minutes per day multiplied by five days per week. Time spent learning for the blended course was generated by taking 87 minutes a day multiplied by three days a week and using the Edgenuity report to find online time spent learning for the remaining two days.

Research question two included the independent variable of course format; blended or traditional learning environment, which was recorded in Skyward, and one dependent variable, course grades. Success resulting from the acquisition of knowledge

in the blended government course and the non-blended government course was measured using the final grades. The final grade for each student in each blended class was recorded as a percent earned out of 100% was compared to the student grades of the traditional government class.

Research question three included the independent variable of course format: blended or traditional learning environment. The dependent variable, student satisfaction with the course and students reporting that they enjoyed taking the government course, was measured on the survey with responses to the yes/no question, "Did you enjoy taking this government course?"

Research question four included the independent variable of course format: blended or traditional learning environment. Question four also included the dependent variable of the likelihood of students to take a blended course in the future and the dependent variable of the likelihood of students to take an online course in the future. These variables were measured by item 6 in the survey with responses to the question *How likely they are you to take a blended course in the future*? and the question *How likely are you to take an online course in the futur*e? Survey item 6 asked students to rate themselves using a 5-point scale: *(1) Extremely Likely (2) Quite Likely (3) Slightly Likely, (4) Quite Likely and (5) Extremely Likely.*

Research question five included the independent variable of course format, blended or traditional learning environment, and the dependent variable of recommending the course to others. This variable was measured by survey item 14 was measured on the survey with responses to the yes/no question: *would you recommend this course to other students?*

RQ6 included the independent variable of course format, blended or traditional learning environment, and the dependent variable of students reporting that they are able to be self-directed learners. Survey item 7 asked students to rate themselves according to extent that it is true the government class has been helpful in learning effectively on their own using a 4-point scale: (1) *Definitely Not true* (2) *Somewhat True* (3) *Mostly True*, and (4) *Definitely True*.

Research question seven included the independent variable of course format, blended or traditional learning environment, and the dependent variable of time management skills. Survey item 7 asked students to rate themselves according to extent that it is true the government class has been helpful in managing their time using a 4-point scale: (1) *Definitely Not true* (2) *Somewhat True* (3) *Mostly True*, and (4) *Definitely True*. Survey item 11 was measured with responses to the yes/no question: *Did this class help you to organize your time in a way that has helped you to complete assignments on time?* Survey item 12 was measured with responses to the yes/no question: *Did this class help you to manage your time more effectively?* Survey item 13 was measured with responses to the yes/no question: *Did this class help to prepare you for time management challenges in future courses?*

Validity and reliability. According to Creswell (2009), an instrument's validity depends on "whether one can draw meaningful and useful inferences from scores on the instruments" (p. 149). In order for an instrument to be deemed reliable, it must show results that are consistent from one application to the next. A valid test measures what it is supposed to measure (Lunenburg & Irby, 2008). Creswell (2009) indicated that

reliability "refers to whether scores to items on an instrument are internationally consistent" (p. 233).

In August of 2013, the researcher met online with two professors to create a survey to be used with high school government students taking blended and traditional courses that would be sufficient for district feedback regarding the success of the blended program in both high schools. The three researchers put together questions using Likert-type scales, yes/no questions, and open-ended questions with Google Forms.

Reliability is not an issue with measurement of this type because concrete measures were used. Roberts (2010) defined reliability as the degree to which a scale or other data collection instrument consistently measures a variable of interest. Reliability is usually assessed for multi-item scales and high-inference measures. Although establishing reliability can be important for multi-item scales and test instruments administered multiple times, this survey included single item measurement, standard Likert scales, and low-inference and demographic questions that are unlikely to waiver from one administration of the survey to the next. Student achievement was measured using course grades. Time spent learning was calculated with reports extracted from the Edgenuity online software as well as time spent in class. Survey data was accessed but no scales were constructed so there were no issues with inter-item consistency or reliability.

Data Collection Procedures

The researcher submitted a completed District Limited Application for Use of Open Records Form to the district clerk of the board to obtain the first and last names of the government teachers involved in the implementation (see Appendix C). The Maize

USD 266 superintendent approved the use of course grades, survey information, and Edgenuity statistical data to be used for this study. The process to obtain permission from Baker University to conduct the research study was initiated. An Institutional Review Board (IRB) request was submitted to Baker University on June 19, 2014 (see Appendix D). The Baker University IRB committee approved the research study on July 30, 2014 (see Appendix E).

After obtaining approval from the district superintendent and the Baker University IRB committee, the principals at each high school were contacted. The researcher was given access to Skyward to obtain the course grades. Edgenuity was accessed from the administrator of the online software and the data containing government student time spent learning was downloaded. The government teachers from each of the two high schools met with the researcher to provide access information for access to the data for the study. The data collected included student enrollment information for the 2013-2014 school year (both blended and non-blended government classes) and final grades for each government course located in Skyward.

The researcher requested access to course grades for both traditional and blended government courses through the Skyward school administration software. Student names were changed to student identification numbers to protect the student privacy of those in the course. After access was granted, student names were changed to numbers for the protection of privacy of each student. This tool was used to assess student success in learning the information for the course.

Survey data were readily available for the researcher since it was within the regular job description to conduct the survey for district purposes. The researcher

requested permission to use the data from the superintendent for use in this study. Survey data were obtained from a Google Form spreadsheet within the researcher's Google drive.

Data Analysis and Hypothesis Testing

This section contains descriptions of the analyses used to address the research questions that were specified in chapter one. Each question is listed with the hypothesis used to address it along with the appropriate analysis to test that hypothesis.

RQ1. To what extent is there a difference in the amount of time spent learning between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H1. There is a statistically significant difference in the amount of time spent learning between government students enrolled in blended learning environment and government students enrolled in traditional learning environment.

A two-sample *t* test was conducted to test H1. The sample mean for the time spent learning by government students enrolled in a blended learning environment was compared to the sample mean for the time spent learning by government students enrolled in a traditional learning environment. The level of significance was set at .05.

RQ2. To what extent is there a difference in course grades between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H2. There is a statistically significant difference in course grades between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H2. The sample mean for grades of government students enrolled in a blended learning environment was compared to the sample mean for grades of students enrolled in a traditional learning environment. The level of significance was set at .05.

RQ3. To what extent is there a difference in the number of students reporting that they *enjoyed taking this government course* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H3. There is a statistically significant difference in the number of students reporting that they *enjoy taking this government course* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A chi-square test of independence was conducted to test H3. The number of government students reporting that they enjoyed taking the government course was compared between government students enrolled in a blended learning environment and students enrolled in a traditional learning environment. The level of significance was set at .05.

RQ4. To what extent is there a difference in students reporting that they are *likely to take a blended or online course in the future* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H4. There is a statistically significant difference in students reporting that they are *likely to take a blended course in the future* between government students enrolled in a

blended learning environment and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H4. The sample mean for reporting that *they were likely to take a blended course in the future* of government students who were enrolled in a blended learning environment was compared to the sample mean for reporting that they were likely to take a blended course in the future of government students enrolled in a traditional learning environment. The level of significance was set at .05.

***H5*.** There is a statistically significant difference in students reporting that they are *likely to take an online course in the future* between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H5. The sample mean for reporting that they were likely to take an online course in the future of government students who were enrolled in a blended learning environment was compared to the sample mean for reporting that they were likely to take an online course in the future of government students enrolled in a traditional learning environment. The level of significance was set at .05.

RQ5. Is there a difference in the number of students reporting that they are likely to recommend the course to others between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H6. There a statistically significant difference in the number of students reporting that they are likely to recommend the course to others between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A chi-square test of independence was conducted to test H6. The number of government students reporting that they are likely to recommend the course to others was compared between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The level of significance was set at .05.

RQ6. To what extent is there a difference in students reporting that Government class has been helpful in [their] ability to learn effectively on [their] own between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H7. There a statistically significant difference in students reporting how much government class helped them to learn effectively on [their] own between students enrolled in a blended learning environment and students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H7. The sample mean for reporting that the government class helped them to learn effectively on [their] own of students who were enrolled in a blended learning environment was compared to sample mean for reporting that the government class helped them to learn effectively on [their] own of students who were enrolled in a traditional learning environment. The level of significance was set at .05.

RQ7. To what extent is there a difference in students' perceptions of the effect the government class had on their time management skills between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H8. There is a statistically significant difference in students' perceptions of the effect the government class had on their time management skills between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H8. The sample mean for reporting that the government class was helpful to managing [their time] for students who were enrolled in a blended learning environment was compared to the sample mean for reporting that the government class has been helpful to managing [their time] for students who were enrolled in a traditional learning environment. The level of significance was set at .05.

H9. There is a statistically significant difference in the number of students who reported that the government class was helpful to organize [their] time in a way that helped them to complete assignments on time between students enrolled in a blended learning environment and students enrolled in a traditional learning environment.

A chi-square test of independence was conducted to test H9. The number of government students reporting that the government class was helpful to organize [their] time in a way that helped them to complete assignments on time between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The level of significance was set at .05.

H10. There is a difference in the number of student reports that the government class has been helpful to manage [their] time more effectively between students enrolled in the blended learning environment and students enrolled in the traditional learning environment.

A chi-square test of independence was conducted to test H10. The number of students reporting that the government class has been helpful to manage [their] time more effectively was compared between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The level of significance was set at .05.

H11. There is a difference in the number of students reporting that the government class has helped prepare for time management challenges in future courses between students enrolled in the blended learning environment and students enrolled in the traditional learning environment.

A chi-square test of independence was conducted to test H11. The number of government students reporting that the government course helped prepare for time management challenges in future courses was compared between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The level of significance was set at .05.

Limitations

Limitations are the elements that a researcher has no way to control with respect to the study (Lunenburg & Irby, 2008). The following limitations are present in the current study and may have affected the results of data and may influence its use in general settings.

1. The teachers used teacher created assessments that were different in each school, thus comparisons of student success may be influenced by the instrument used.
2. Instructional delivery methods are not required of specific instructors; instructors select their instructional method based on their preferences, comfort levels, and pedagogical goals. Therefore, the results may be influenced by individual instructor and teaching style, not necessarily the mode of instructional delivery.
3. The survey was not made available to government students enrolled in the traditional learning environment during Terms 3 and 4 due to the teacher neglecting to make the survey available before the end of the term, therefore, results for both groups included students in terms 1 and 2 only.
4. Attendance data was unusable due to discrepancies in the way that absences were recorded on days that students who were enrolled in the blended environment were not required to attend class.

Summary

Within the last 10 years, there has been significant movement toward blended forms of learning (So & Bonk, 2010). Therefore, the researcher sought to find the time spent learning, success rate (grades), satisfaction of learning, self-regulation and time management skills between blended high school government courses and non-blended high school government courses within Maize USD 266. Chapter three explained the specifics of the current study, which include the research design, population, sample and sampling procedures. The chapter provided details the instruments used to measure

student success and time spent learning and measurement procedures. The chapter also includes validity and reliability data collection procedures, data analysis and hypothesis testing, and study limitations. Chapter four includes the results of the hypothesis testing.

Chapter Four

Results

The purpose of this study was to determine the differences between the perceptions of government students enrolled in the blended learning environment and government students enrolled in the traditional learning environment. Chapter four provides an explanation of the hypothesis testing for the research questions. This chapter is organized by research question followed by hypothesis, hypothesis testing, and results of each.

Hypothesis Testing

The hypothesis testing addressed seven research questions. The results of the 11 hypothesis tests are presented below.

RQ1. To what extent is there a difference in the amount of time spent learning between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

***H1*.** There is a statistically significant difference in the amount of time spent learning between government students enrolled in blended learning environment and government students enrolled in traditional learning environment.

A hypothesis test was not conducted due to discrepancies in the attendance data. Comparisons of time spent in the classroom within the traditional learning environment was to be compared with the time spent learning in the blended learning environment by adding time spent learning in the classroom to exported online learning time data from Edgenuity software. While attendance data from school B was accurate, attendance data from school A could not be determined. Students in the blended learning environment in

school A were marked with an excused absence on the days that they were to work online from home. Exported attendance data did not discriminate the difference between excused absences and absences that were not excused in school A. Therefore, attendance data could not be used to determine time spent learning.

RQ2. To what extent is there a difference in course grades between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H2. There is a statistically significant difference in course grades between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H2. The sample mean for the grades of government students enrolled in a blended learning environment was compared to the sample mean for the grades of government students enrolled in a traditional learning environment. The level of significance was set at .05. The results of the two sample *t* test indicated there was not a statistically significant difference between the two values, $t = 0.3708$, $df = 254$, $p = .711$. The sample mean for blended classes ($M = 87.15$, $SD = 7.90$) was not different from the sample mean for traditional classes ($M = 86.77$, $SD = 8.20$).

RQ3. To what extent is there a difference in the number of students reporting that they enjoyed taking this government course between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H3. There is a statistically significant difference in the number of students reporting that they enjoy taking this government course between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A chi-square test of independence was conducted to test H3. The number of government students reporting that they enjoyed taking the government course was compared between government students enrolled in a blended learning environment and students enrolled in a traditional learning environment. The level of significance was set at .05. The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $x^2 = 11.522$, $df = 1$, $p = .000$. The observed frequency for the students who responded to the survey question with yes reporting that they enjoyed taking the government course in the blended learning environment ($n = 132$) was higher than the expected frequency for the students who responded to the survey question with yes that they enjoyed taking the government course in the blended learning environment ($n = 124.7$). The observed frequency for the students who responded to the survey question with no to reporting that they did not enjoy taking the government course in the traditional learning environment ($n = 15$) was higher than the expected frequency for the students who responded to the survey question with no to reporting that they did not enjoy taking the government course in the traditional learning environment ($n = 7.7$) (see Table 3). Students in the blended learning environment tended to say they enjoyed the course, while students in the traditional learning environment tended to say they did not enjoy the course.

Table 3

Observed and Expected Frequencies for Hypothesis 3

		Enjoyed the Course	
Learning Environment		No	Yes
Blended	Observed	8	132
	Expected	15.3	124.7
Traditional	Observed	15	56
	Expected	7.7	63.3

RQ4. To what extent is there a difference in students reporting that they are likely to take a blended or online course in the future between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H4. There is a statistically significant difference in students reporting that they are likely to take a blended course in the future between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H4. The sample mean for reporting that they were likely to take a blended course in the future of government students who were enrolled in a blended learning environment was compared to the sample mean for reporting that they were likely to take a blended course in the future of government students enrolled in a traditional learning environment. The level of significance was set at .05. A statistically significant difference was found, $t = 8.14$, $df = 209$, $p = .000$. The mean of students in the blended learning environment reporting that they would be likely

to take a blended course in the future (M = 4.04, SD = 1.07) was statistically higher than the mean of students in the traditional learning environment reporting that they would be likely to take a blended course in the future (M = 2.78, SD = 1.01). On average, students in the blended learning environment were more likely to take a blended course in the future than students in a traditional learning environment were to take a blended course in the future.

H5. There is a statistically significant difference in students reporting that they are likely to take an online course in the future between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A two-sample t test was conducted to test H5. The sample mean for reporting that they were likely to take an online course in the future of government students who were enrolled in a blended learning environment was compared to the sample mean for reporting that they were likely to take an online course in the future of government students enrolled in a traditional learning environment. The level of significance was set at .05. A statistically significant difference was found t = 4.53, df = 209, p = .000. The mean of students in the blended learning environment reporting that they would be likely to take an online course in the future (M = 3.50, SD = 1.14) was statistically higher than the mean of students in the traditional learning environment reporting that they would be likely to take an online course in the future (M = 2.73, SD = 1.21). On average, students in the blended learning environment reported that they were more likely than students in a traditional learning environment were to take a blended course in the future.

RQ5. Is there a difference in the number of students reporting that they are likely to recommend the course to others between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H6. There a statistically significant difference in the number of students reporting that they are likely to recommend the course to others between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment.

A chi-square test of independence was conducted to test H6. The number of government students reporting that they are likely to recommend the course to others was compared between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The level of significance was set at .05. The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $x^2 = 5.772$, $df = 1$, $p = .016$. The observed frequency for the government students who said yes in the blended learning environment ($n = 129$) was higher than the expected frequency for the government students who said yes in the blended learning environment ($n = 124.1$). The observed frequency for the government students who said no in the traditional learning environment ($n = 12$) was higher than the expected frequency for the government students who said no the traditional learning environment ($n = 7.1$) (see Table 4). Government students in the blended learning environment tended to say they were likely to recommend the course to others, while government students in the traditional learning environment tended to say no when asked if they would recommend the course to others.

Table 4

Observed and Expected Frequencies for Hypothesis 6

		Likely to Recommend	
Learning Environment		No	Yes
Blended	Observed	9	129
	Expected	13.9	124.1
Traditional	Observed	12	58
	Expected	7.1	62.9

RQ6. To what extent is there a difference in students reporting that government class has been helpful in [their] ability to learn effectively on [their] own between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

H7. There a statistically significant difference in students reporting how much government class helped them to learn effectively on [their] own between students enrolled in a blended learning environment and students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H7. The sample mean for reporting that the government class helped them to learn effectively on [their] own for government students who were enrolled in a blended learning environment was compared to sample mean for reporting that the government class helped them to learn effectively on [their] own for government students who were enrolled in a traditional learning environment. The level of significance was set at .05. A statistically significant difference was found, $t = 3.67$, $df = 209$, $p = .000$. The mean of students in the blended learning environment

reporting that the government class helped them to learn effectively on [their] own (*M* = 3.39, *SD* = .79) was statistically higher than the mean of students in the traditional learning environment reporting that the government class helped them to learn effectively on [their] own (*M* = 2.94, *SD* = .92). On average, students in the blended learning environment agreed that government class helped them to learn effectively on [their] own more than students in the traditional learning environment said yes that government class helped them to learn effectively on [their] own.

RQ7. To what extent is there a difference in students' perceptions of the effect the government class had on their time management skills between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment?

***H8*.** There is a statistically significant difference in students' perceptions of the effect the government course had on their time management skills between government students enrolled in a blended learning course and government students enrolled in a traditional learning environment.

A two-sample *t* test was conducted to test H8. The sample mean for reporting that the course was helpful to managing [their time] for government students who were enrolled in a blended learning environment was compared to the sample mean for reporting that the course has been helpful to managing [their time] for government students who were enrolled in a traditional learning environment. The level of significance was set at .05. A statistically significant difference was found, $t = 5.05$, $df = 209$, $p = .000$. The mean of government students in the blended learning environment reporting that the course was helpful to managing [their time] (*M* = 3.51, *SD* = .74) was

statistically higher than the mean of government students in the traditional learning environment reporting that the course was helpful to managing [their time] (*M* = 2.89, *SD* = .1.01). On average, students in the blended learning environment reported that government class was helpful to managing [their time] more than students in the traditional learning environment did.

H9. There is a statistically significant difference in the number of students who reported that the government class was helpful to organize [their] time in a way that helped them to complete assignments on time between students enrolled in a blended government course and students enrolled in a traditional government course.

A chi-square test of independence was conducted to test H9. The number of students reporting that the government class was helpful to organize [their] time in a way that helped them to complete assignments on time between government students enrolled in a blended learning environment and students enrolled in a traditional learning environment. The level of significance was set at .05. The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $x^2 = 11.21$, $df = 1$, $p = .001$. The observed frequency for the government students who said yes in the blended learning environment ($n = 129$) was higher than the expected frequency for the government students who said yes in the blended learning environment ($n = 121.2$). The observed frequency for the government students who said no in the traditional learning environment ($n = 17$) was higher than the expected frequency for the government students who said no in the traditional learning environment ($n = 9.2$) (see Table 5). Government students in the blended learning environment reported that the course was helpful to organize [their] time in a way that

helped them to complete assignments on time, while government students in the traditional learning environment reported that the government class was not helpful to organize [their] time in a way that helped them to complete assignments on time.

Table 5

Observed and Expected Frequencies for Hypothesis 9

		Organize their Time	
Learning Environment		No	Yes
Blended	Observed	11	129
	Expected	18.8	121.2
Traditional	Observed	17	52
	Expected	9.2	59.8

H10. There is a difference in the number of student reports that the government class has been helpful to manage [their] time more effectively between students enrolled in the blended learning environment and students enrolled in the traditional learning environment.

The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $x^2 = 13.18$, $df = 1$, $p = .000$. The observed frequency for the government students who said yes in the blended learning environment ($n = 120$) was higher than the expected frequency for the students who said yes in the blended learning environment ($n = 109.9$). The observed frequency for the government students who said no who were enrolled in the traditional learning environment ($n = 25$) was higher than the expected frequency for the government students who said no who were enrolled in the traditional learning environment ($n = 14.9$)

(see Table 6). Government students in the blended learning environment were more likely to report that the course was helpful to manage time more effectively, while government students in the traditional learning environment were more likely to report that the government class was not helpful to manage time more effectively.

Table 6

Observed and Expected Frequencies for Hypothesis 10

		Manage Time Effectively	
Learning Environment		No	Yes
Blended	Observed	20	120
	Expected	30.1	109.9
Traditional	Observed	25	44
	Expected	14.9	54.1

H11. There is a difference in the number of students reporting that the government class has helped prepare for time management challenges in future courses between students enrolled in the blended government course and students enrolled in the traditional government course.

The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $x^2 = 25.97$, $df = 1$, $p = .000$. The observed frequency for the government students who said yes in the blended learning environment ($n = 125$) was higher than the expected frequency for the government students who said yes in the blended learning environment ($n = 111.1$). The observed frequency for the government students who said no in the traditional learning environment ($n = 28$) was higher than the expected frequency for the government

students who said no in the traditional learning environment (n = 14.1) (see Table 7). Government students in the blended learning environment were more likely to report that the course helped to prepare for time management challenges in future courses, while students in the traditional learning environment were more likely to report that the course was not helpful to prepare for time management challenges in future courses.

Table 7

Observed and Expected Frequencies for Hypothesis 11

		Time Management to Prepare for Other Courses	
Learning Environment		No	Yes
Blended	Observed	14	125
	Expected	27.9	111.1
Traditional	Observed	28	42
	Expected	14.1	55.9

Summary

Chapter four contained the results of the data analysis and hypothesis testing. The results of the five two-sample *t* tests and five chi-square test of independence were presented. RQ1 could not be addressed due to data collection procedures. Findings related to RQ2 were found to be nonsignificant. Findings for the other five research questions were found to be statistically significant. Chapter five includes a summary of the research study, major findings, connections to the literature, implications for action, recommendations for further study, and conclusions.

Chapter Five

Interpretation and Recommendations

This chapter provides an overview of the problem, the purpose statement, research questions, and methodology. Additionally, the major findings, implications for action, and the recommendations for future research are provided. The chapter ends with concluding remarks.

Study Summary

The first segment of this chapter offers a brief summary of the current study. The summary contains a condensed overview of the research problem related to different facets of blended learning in relation to course grades, enjoyment of blended learning courses, inclination to take blended or online courses in the future, self-regulated learning skills resulting from blended learning, and time management skills related to blended learning. Second, an explanation of the purpose of the current research study is provided. The third section provides a brief overview of the methodology used in the current study.

Overview of the problem. As stated in chapter two, online learning is prevalent and necessary to prepare students for college and career. Research has shown that success in online learning as well as traditional learning requires self-directed learning (Azevedo, et al., 2011; Greene & Azevedo, 2009; Greene, & Azevedo, 2010; Zimmerman & Schunk, 2011). Many students lack self-directed learning skills required by online learning alone. College and Career Ready Standards require students to be able to be able to incorporate technology in learning. College and Career Ready Standards require that students "use technology, including the Internet to produce and publish writing and to interact and collaborate with others" (NGA Center & CCSSO, 2010, p.18).

Educators are challenged to improve achievement and teach differently using innovative technologies that allow them to access information in alternative locations. The confinement of a traditional classroom is no longer required to receive quality instruction.

Purpose statement and research questions. The purpose of this study was to examine the difference between high school government students enrolled in a blended learning environment and high school students enrolled in a traditional learning environment in the areas of time spent learning, course grades, and students reporting that they enjoyed taking a government course. The purpose of this study also included the examination of the difference between government students enrolled in a blended learning environment and students enrolled in a traditional learning environment reporting that they were likely to take another blended or online course in the future and students recommending the course to others. Lastly, another purpose of this study was to examine the difference between government students enrolled in a blended learning environment and students enrolled in a traditional learning environment reporting that the government course strengthened the student's ability to be self-regulated learners and student perceptions of the development of their time management skills.

Review of the methodology. This quantitative research study was conducted using archival data from Maize USD 266 acquired during the 2013-2014 school year from government courses (both blended and traditional) for four nine-week terms. The population was 12th grade high school government students. Data from three resources were used for this study: Edgenuity online statistics reports, Skyward reports of end-of-course grades and attendance, and an end-of-course survey. Dependent variables in this study included time spent learning, course grades, students reporting that they enjoyed

the course, likelihood a student would take a blended course in the future, likelihood a student would take an online course in the future, likelihood of a student recommending the course to others, students reporting that they are able to be self-directed learners, and student perceptions of time management skills. Independent variables in the study included the course format, blended or traditional learning environment. Five two-sample *t* tests and five chi-squared tests of independence were used to test the hypotheses.

Major Findings. This research focused on seven research questions. Inconsistencies in the data recording process for attendance across schools made the data unusable in determining whether there was a difference in the amount of time spent learning between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The results of the current study indicated that student grades within the blended learning environment (RQ2) did not differ from student grades in the traditional learning environment. However, the results of the study unveiled several major findings listed below:

- Government students enrolled in the blended learning environment enjoyed the course more than students did who were enrolled in the traditional learning environment.
- Students enrolled in the blended learning environment indicated they were more likely to take a blended course in the future than the students enrolled in the traditional learning environment.

- Students enrolled in the blended learning environment perceived they would be more likely to take an online course in the future than the students enrolled in the traditional learning environment.
- Government students in the blended learning environment indicated they were more likely to recommend the blended course to others than were students enrolled in the traditional learning environment would.
- Government students in the blended learning environment reported that the course helped them to be more self-regulated learners than was reported by government students in the traditional learning environment.
- Government students enrolled in the blended learning environment reported that the class helped them to prepare for time management challenges in future courses more than did students in the traditional learning environment.

Findings Related to the Literature

This section contains a discussion of the results of the current study as they relate to the existing and relevant literature identified in chapter two regarding blended learning. This comparison of the results of the current study to the existing literature discussed in chapter two produced many similarities and differences. The findings related to the literature are presented below in the order the research questions were listed.

The first research question in the current study was intended to compare time spent learning between learning in a blended learning environment and learning in a traditional learning environment. Results to this research question are not included due to inconsistencies in the data. The hypothesis was not tested for this research question.

Research question two was intended to identify the extent to which there is a difference in course grades between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The results of the current study indicated that student grades within the blended learning environment did not differ from student grades in the traditional learning environment. These findings mirrored those of Baki et al. (2012) who conducted a study comparing seventh and eighth grade students' scores in blended and traditional Spanish courses at the West Virginia Virtual School and found that there was no significant difference in achievement. The current study's findings are contradictory to the findings of several other studies such as those of Englert et al. (2005), who compared performance between students using web-based tools and students using the pencil and paper format. Their study took place in a traditional setting within an upper-elementary special education classroom. Students produced significantly higher scores on the primary traits related to writing quality when using web-based support. The differences in the findings may be due to the fact that the Englert et al. study was conducted in the upper-elementary classroom and the current study took place in a high school environment. The differences in those findings may also be because the earlier study focused on the online writing tool rather than the learning environment.

Other studies comparing student grades in online learning environments to student grades in traditional learning environments have shown negative support for purely online learning while blended learning environments have shown boosts in student achievement. The National Center for Education Statistics (2010) found that students tended to have better grades within blended learning courses than in traditional face-to-

face classes. Grades of students working in purely online environments were actually comparable to those of students working in purely face-to-face instruction (Singh & Reed, 2001). In a study by Rovai and Jordan (2004), traditional, online, and blended learning models were compared at the university level. The students participating in the blended environment had higher grades while those in the purely online and traditional environments were lower. The difference in results between the two studies may be because the students in Rovai and Jordan's (2004) study were working at the university level. A study by the University of Tennessee's Physician's Executive MBA program resulted in the students learning from blended teaching methods outperformed students working in the traditional learning environment by 10% (as cited in Singh & Reed, 2001). This study focused on medical professionals in a master's program while the current study focused on high school students in a required government course. The difference in results between the MBA study and the current research study could be tied to the fact that this research study took place at the post-secondary level with students who had elected to take the courses in their academic major.

The study's third research question was intended to determine if there was a difference in students reporting that they enjoyed taking this government course between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. The results of the current research indicated that students enrolled in a blended learning environment reported that they enjoyed taking the government course more than students enrolled in the traditional blended environment did. Jochum (2013) found similar results in a study involving students enrolled in a blended grammar course at the University of Nebraska. Seventy-

five percent of students reported that they enjoyed having the freedom to work independently on course assignments and to be a part of an online community. Rovai and Jordan (2004) compared traditional, online, and blended learning models at the university level. The authors compared how students participating in each of these environments felt regarding a sense of community while taking education courses. Results indicated that there was a significant difference in the number of students in the blended learning environment reporting that they felt a stronger sense of community.

The study's sixth research question was included to determine the extent to which there was a difference in students reporting that the Government class has been helpful in [their] ability to learn effectively on [their] own between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. Results of the current study indicated that students enrolled in a blended learning environment reported that the government class had been helpful in [their] ability to learn effectively on [their] own more than students who were enrolled in the traditional learning environment. Findings from the current study also support the results of the study conducted by Shaughnessy (2004) in which the he found that self-efficacy and self-regulated learning were strengthened in online students when the instructor helped students to set goals and gave timely feedback. Research by Barnard-Brak et al., (2010) is also supported by the current study as their findings revealed that the development of self-regulatory skills was enhanced by participating in blended and online learning structures. Students in Summit, California were actually "taught" self-regulated learning strategies by implementing blended learning strategies such as giving student's opportunities to solve problems, giving students a chance to struggle before

intervening, being deliberate when guiding students toward self-directed learning and instilling the use of technology (Barnard-Brak et al., 2012). The current study also provides additional support for the research of Sansone et al. (2011), Azevedo, et al., (2011); Greene et al. (2011); and Tsai (2011) that self-directed learning within the blended environment was found to be a factor when strengthening learning skills in students. Sansone et al. (2011) found that engaging online lessons enhanced self-directed learning in blended learning environments. Azevedo et al., (2011) found that students who are not naturally self-directed learners could be taught these skills by helping students engage in planning, strategizing and monitoring their own learning (Greene et al., 2011). Self-regulated learning in the blended learning environment was also shown to be enhanced in a study conducted by Tsai (2011) who integrated SRL habits into an undergraduate college course titled "Applied Information Technology: Networking."

The study's seventh research question was used to determine the extent to which there was a difference in students' perceptions of the effect the government class had on their time management skills between government students enrolled in a blended learning environment and government students enrolled in a traditional learning environment. Results of the current study indicated that students enrolled in a blended learning environment reported that the government class had been more helpful in developing time management skills than students enrolled in the traditional learning environment reported. The study by Oliver et al., (2014) referenced online experiences at the pre-university level in an inquiry to find out if online experiences before attending university were instrumental in developing time management skills. Students involved in online courses reported that time management skills were developed. The results of the current

study support those of Oliver et al. (2014), who found that students who were responsible for completing assignments online felt that they had better time management skills as a result. The current study also supports the findings of Loomis (2000) at the University of Wisconsin. Students in the communication and journalism departments at the University of Wisconsin showed increased time management and study skills as a result of working in a blended learning environment. These findings differed from those of Haugh (2007) who found that students at the University of Wisconsin-Milwaukee School of Information Studies involved in a study comparing views of online and face-to-face students did not feel that online experiences affected the ability to manage deadlines more effectively. The differences in results could be tied to the fact that students participating in the study by Haugh (2007) may not have had pre-university online experiences.

Previous research showed that the blended course environment could help students to acquire higher grades. The current research showed that course grades were similar between students in the blended learning environment and students in the traditional learning environment. However, this study supported previous research studies showing that students in the blended learning environment reported that blended learning environments had been helpful in learning effectively on their own and perceived that the class had a positive effect on their time management skills.

Conclusions

Students who participate in learning within a blended learning environment may or may not learn the same amount of material in less time. Although the current study was designed to test this research question, corrupted attendance data from one of the

high schools could not be used. Therefore, time spent learning could not be assessed. Students who participate in learning within a blended learning environment tend to have just as good of grades as students in the traditional environment. Blended learners tend to enjoy their courses more and are more likely to take a blended or online course after participating in a course of this structure. Students in blended environments are likely to recommend to other students to take a blended course. Students who have taken a blended course feel that they are more able to learn effectively on their own and feel that they have developed time management skills through having the experience.

Implications for action. The results of the current research provide implications for action. Both traditional learning and blended learning are only as effective as the course instructor.

Based on the results of the current study, traditional classroom teachers may benefit from providing online opportunities for secondary students in order to provide motivation (enjoyment of the course), develop self-regulated learning skills, develop time management skills, and prepare them to take an online or blended course in the future. College and career ready students are likely to encounter situations after high school that they would be better prepared for after participating within a blended learning environment. The recommendation based on the results of this study is to continue to implement blended learning environments in Maize USD 266, more clearly defined in the following paragraphs.

As a result of the current study, Maize USD 266 is encouraged to respond by expanding blended learning pilot opportunities beyond government to other courses. Statistically significant results regarding student attitudes about blended learning and

their belief that the blended learning opportunities increase self-directed learning skills and time-management skills support movement in this direction. Providing additional opportunities to participate in blended learning environments has the potential to strengthen self-directed learning skills and time management skills even further. Maize USD 266 is also encouraged to begin training instructors to be teachers of blended courses. Providing teachers with a training of software, curriculum design strategies, and course structure templates are necessary for successful implementation of future courses.

Maize USD 266 is also encouraged to provide these opportunities for students enrolled in grade levels below 12th grade using the flex, station rotation, or lab rotation models. This would provide a more controlled blended experience without requiring students to be absent from school. Absence from school for designated periods during the day rather than entire days would require additional transportation needs that may not be available for some students.

Recommendations for future research. Research following this study is recommended to support the conclusions found in this study. The first recommendation is to conduct the study using additional independent variables, which could include additional subject areas and grade levels 9-12. The current study's population was 12th grade government students. Expanding the population would be important to determine whether results would be consistent at other grade levels or with different subject areas.

The second recommendation is to replicate this research study and compare the results to the current research study using different instructors. The instructor is the most important factor related to students in any classroom. If the results with different

instructors were similar, more weight would be added to this research on the blended learning environment.

The third recommendation is to conduct the study with learning time accounted for with accurate attendance and online learning data. The time-spent-learning data was unusable for data analysis in this study due to discrepancies in student attendance collection methods. If results would indicate that less time was spent learning material with similar results, curriculum could be restructured so that students could complete courses in less time.

The fourth recommendation is to conduct the study using a mixed methods research design. Interviews conducted with students, parents, and teachers could provide perspectives that were not accounted for in the current study.

The fifth recommendation is to follow up with students who participated in this study following their first year of college. Surveying these students could provide important information regarding the success of blended learning and the preparation for online experiences in a post-secondary environment. The sixth recommendation is to replicate this study in an urban district with high poverty levels, since this study was conducted in a suburban, predominately white district with low poverty levels.

Concluding remarks. The current educational climate is at the beginning of a shift from traditional face-to-face learning to an environment that provides high school students with opportunities to learn within a schedule and structure that mimics college experiences. For years, educators have been challenged with updating the traditional school structure from teacher-led, desks in rows, single-subject, hour-long courses to a structure that supports the working environment that they will experience after high

school. The time has finally come that states have recognized the fact that students do not need to spend seat-time in schools to learn. Now it is acceptable for students to learn away from school using online environments. Blended learning preserves what works in the traditional environment while employing new pedagogies and technologies where appropriate. Because the shift to blended learning has been experimental and the applications have been varied, blended learning environments may not be equally or equitably successful. Implemented correctly, blended learning can eliminate the barriers of time, place, path, and pace so that each student can work according to their individual needs. Research-based strategies are not only important in traditional classrooms but should also continue to be expected in online structures. The current study shows that students can learn to be more self-directed and develop time-management strategies when given opportunities to build these skills.

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Appendices

Appendix A: District Limited Application for Use of Open Records Form

MAIZE
UNIFIED SCHOOL DISTRICT 266

REQUEST TO REVIEW MAIZE USD 266 RECORDS

Date of Request: 8/7/2014

Person/Persons Making Request: Jennifer D. Kern

Company: Baker University

Address: 8001 College Blvd #100, Overland Park, KS 66210

Specific Record Being Requested: Grades for Blended and Traditional Government Classes at MHS and MSHS from August 2013-June 2015, Survey Results from Blended and Traditional Government Classes at MSHS and MSHS from August 2013-June 2015

Date Made Available: 8/21/2014 Acknowledged: _____

**District records are on file as specified by KSA 45-215 et seq. and may be viewed in the central office during regular office hours. Any fees and/or cost for providing the requested records shall be computed and paid in advance.*

Educational Support Center
11611 W. 49th Street N.
Maize, KS 67101
usd266.com
phone: 316-722-0614
fax: 316-722-8538

Appendix B: Blended Government Effectiveness Survey

Blended Government Effectiveness Survey Term 2

* Required

1. **My Government course was** *
   Mark only one oval.
   - ◯ Blended (Mon/Wed/Fri)
   - ◯ Face-To Face (Monday-Friday)

2. **I am** *
   Mark only one oval.
   - ◯ male
   - ◯ female

3. **I attend** *
   Mark only one oval.
   - ◯ MSHS
   - ◯ MHS

4. **Government term** *
   Mark only one oval.
   - ◯ Term 1 Fall 2013 block 1
   - ◯ Term 1 Fall 2013 block 2
   - ◯ Term 1 Fall 2013 block 3
   - ◯ Term 1 Fall 2013 block 4
   - ◯ Term 2 Fall 2013 block 1
   - ◯ Term 2 Fall 2013 block 2
   - ◯ Term 2 Fall 2013 block 3
   - ◯ Term 2 Fall 2013 block 4

5. **Did you enjoy taking this Government course?** *
   Mark only one oval.
   - ◯ yes
   - ◯ no

6. **How likely are you to** *
   Mark only one oval per row.

	Extremely Unlikely	Quite Unlikely	Slightly Likely	Quite Likely	Extremely Likely
take a blended course in the future?	◯	◯	◯	◯	◯
take an online course in the future?	◯	◯	◯	◯	◯

7. **To what extent is it true that the Government class has been helpful in the following areas:** *
Mark only one oval per row.

	definitely not true	somewhat true	mostly true	definitely true
Think critically and analytically				
Work effectively with others				
Learn effectively on your own				
Understand yourself and your learning needs				
Manage your time				
Prepare for online learning courses				
Retain information about this class				
Understand course concepts				
Connect to your life				

8. **To what extent have you** *
Mark only one oval per row.

	Never	Rarely	Occasionally	A moderate amount	A great deal
worked harder than expected					
applied a lot of effort in government work					
had opportunities to apply creativity in Government assignments					
been challenged to do your best work in class					
had to spend a lot of time studying					
worked on an assignment or project using information from several sources					
spent time preparing for class					
asked questions in class					
participated in discussions in class					
created a presentation assignment in class					
collaborated with other students on projects for this class DURING class					
collaborated with other students on projects for this class OUTSIDE of class (friends, family, etc)					

9. **Approximately how much time did you spend outside of class working on Government assignments?** *
Mark only one oval.

- Less than 2 hours
- 2-4 hours
- more than 4 but less than 6 hours
- 6 or more hours

10. **How often were you able to get assignments completed by the due dates?** *
Mark only one oval.

- ◯ never
- ◯ sometimes
- ◯ usually
- ◯ always

11. **Did this class help you to organize your time in a way that has helped you to complete assignments on time?** *
Check all that apply.

- ☐ yes
- ☐ no

12. **Did this class help you to manage your time more effectively?** *
Check all that apply.

- ☐ yes
- ☐ no

13. **Did this class help to prepare you for time management challenges in future courses?** *
Check all that apply.

- ☐ yes
- ☐ no

14. **Would you recommend this course to other students?** *
Check all that apply.

- ☐ yes
- ☐ no

15. **If yes, why and if no, why not?** *

16. **What, in your opinion, would make this course better?** *

_____

17. **What was most difficult about this course?** *

Mark all that apply

Check all that apply.

- [ ] Using technology/internet
- [ ] Organizing my time to get assignments done
- [ ] Assignments
- [ ] Assignments were long
- [ ] The quizzes
- [ ] The tests
- [ ] Other: _____

18. **What did you like about the curriculum?**

_____

_____

_____

_____

_____

19. **What did you dislike about the curriculum?**

_____

_____

_____

_____

_____

20. **Was the course what you expected?** *
Check all that apply.

- [ ] yes
- [ ] no

21. **Why or why not?** *

22. **Comments about the course**

Appendix C: Attendance Log

SESSION LOG FOR: [redacted]

Session	Time	Activities Completed
Week 1: 1/5/2014 - 1/11/2014	2 Hrs 22 Mins	13
Wednesday 1/8/2014	**1 Hr 51 Mins**	**10**
8:08 AM-8:08 AM	**0 Mins**	
8:11 AM-8:47 AM	**36 Mins**	**2**
BI Government Principles of Government-Kallenbach3	26 Mins	2
Idle Time	10 Mins	
10:27 AM-10:52 AM	**25 Mins**	**4**
BI Government Principles of Government-Kallenbach3	24 Mins	4
Idle Time	1 Min	
3:27 PM-3:27 PM	**0 Mins**	
3:28 PM-4:18 PM	**50 Mins**	**4**
BI Government Principles of Government-Kallenbach3	48 Mins	4
Idle Time	2 Mins	
Friday 1/10/2014	**31 Mins**	**3**
8:31 AM-9:02 AM	**31 Mins**	**3**
BI Government Principles of Government-Kallenbach3	23 Mins	3
Idle Time	8 Mins	

Appendix D: IRB Form

BAKER UNIVERSITY

SCHOOL OF EDUCATION
GRADUATE DEPARTMENT

Date: June 19, 2014

IRB PROTOCOL NUMBER _____
(IRB USE ONLY)

IRB REQUEST
Proposal for Research
Submitted to the Baker University Institutional Review Board

I. Research Investigator(s) (Students must list faculty sponsor first)

Department(s) **School of Education Graduate Department**

Name:	Signature	
1. Susan Rogers	Susan K Rogers	Major Advisor
2. Margaret Waterman	Margaret Waterman	Research Analyst
3. Harold Frye	_____	University Committee Member
4. Jeri Carroll	_____	External Committee Member

Principal Investigator: Jen Kern _____
Phone: 316-461-2820
Email: jkern@usd266.com
Mailing address: 12118 W. Hickory Lane Wichita, KS 67235

Faculty sponsor: Dr. Susan Rogers
Phone: 913-344-1226 (office); 785-230-2801 (mobile)
Email: srogers@bakeru.edu

Expected Category of Review: _X_Exempt ___ Expedited _ __Full

II: Protocol: (Type the title of your study)

The Differences between Blended and Traditional Learning in High School Government Classes

Summary

In a sentence or two, please describe the background and purpose of the research.

As research about blended learning continues to develop, new possibilities are brought to light, especially with the adoption of the Edgenuity online curriculum in the Maize School District in Maize, Kansas. The data collected during the Maize pilot comparing blended Government courses to the traditional Government courses is used for this study. The traditional classes used in this pilot met daily for 90 minutes a day, five days a week. The blended Government classes meet three times a week for 90 minutes a day and accessed the other two days' of classwork online. The purpose of this study is to examine the differences in students' time spent learning, success (grades), enjoyment of learning and self-regulated learning between classes taught with blended learning and classes taught traditionally during the 2013-2014 school year. The same content was covered in both traditional and blended designs.

Briefly describe each condition or manipulation to be included within the study.

This study does not contain any manipulations. The research utilized archival data from a prior pilot completed in Maize.

What measures or observations will be taken in the study?
If any questionnaire or other instruments are used, provide a brief description and attach a copy.

Traditional and blended classroom results will be compared. Measurements will include data comparing time spent learning, grades in the course, satisfaction of the course, likeliness to take blended and online courses in the future, likeliness to recommend this type of course to others and the ability to apply self-directed learning. Archival survey data will be accessed as well as archival data such as student grades and software reports revealing student time spent learning online.

Will the subjects encounter the risk of psychological, social, physical or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.

The subjects will not encounter psychological, social, physical, or legal risk.

Will any stress to subjects be involved? If so, please describe.

All information for the research is to be obtained from archival data; therefore, students will not be subjected to stress.

Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.

Subjects will not be deceived or misled in any way.

Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.

Student grades will be requested from Mrs. Diane Moser and Mrs. Sue Kallenbach, but student names will be removed prior to being sent to the researcher. The archival survey data will also requested, but the surveys were anonymous in nature.

Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.

Regular Government curriculum was used for the pilot. The data will be archived and retrieved after the course are completed. No materials are considered to be offensive, threatening, or degrading.

Approximately how much time will be demanded of each subject?

No additional time will be demanded of each student.

Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.

Maize High School Government students will be the subjects of this study. Archival data will be accessed; therefore, no solicitation will be used.

What steps will be taken to insure that each subject's participation is voluntary?

The data is archival data. Students will not need to consent to participate.

What if any inducements will be offered to the subjects for their participation?

No inducements will be offered. This study acquired archival information from the blended Government pilot after the pilot was completed in the Spring of 2014.

How will you insure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.

Students who were a part of the pilot program signed up voluntarily for the blended Government course or the traditional Government course. Consent to participate in the study will not be necessary because all of the data will be used was archival.

Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.

Permanent records of grades will be accessed as archival data for this study. The data will not be altered in any way and students will not be identifiable.

Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher or employer? If so, explain.

The study will take place after the students have completed the course. Archival data will be used. The use of their statistical information, grades, or survey results will not be reflected on their permanent record.

What steps will be taken to insure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with it after the study is completed?

The names associated with grades will be changed to protect the privacy of the students. Other information gathered from the survey will be anonymous and available only to the researcher. The information will be stored for 5 years in GoogleDocs, which is password protected. Records will be deleted after 5 years.

If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?

There are no risks involved in the study. Benefits to the students may include the experience gained that will be helpful if going on to college.

Will any data from files or archival data be used? If so, please describe.

All of the data used will be archival data from the Maize Blended Government Pilot records and survey.

Appendix E: IRB Approval Letter

BAKER UNIVERSITY
Own Confidence

July 30, 2014

Dear Jennifer Kern and Dr. Rogers,

The Baker University IRB has reviewed your research project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. At designated intervals (usually annually) until the project is completed, a Project Status Report must be returned to the IRB.
2. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
3. Notify the OIR about any new investigators not named in original application.
4. Any injury to a subject because of the research procedure must be reported to the IRB Chair or representative immediately.
5. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity. If you use a signed consent form, provide a copy of the consent form to subjects at the time of consent.
6. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
7. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts must be submitted to OIR.

Please inform Office of Institutional Research (OIR) or myself when this project is terminated or completed. As noted above, you must also provide OIR with an annual status report and receive approval for maintaining your status. If your project receives funding which requests an annual update approval, you must request this from the IRB one month prior to the annual update. Thanks for your cooperation. If you have any questions, please contact me.

Sincerely,

Chris Todden EdD
Chair, Baker University IRB

Baker University IRB Committee
Vemeda Edwards EdD
Sara Crump PhD
Molly Anderson
Scott Crenshaw