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Concordia University-Portland

College of Education

Doctorate of Education Program

# WE, THE UNDERSIGNED MEMBERS OF THE DISSERTATION COMMITTEE CERTIFY THAT WE HAVE READ AND APPROVE THE DISSERTATION OF

Melinda S. Payton

# CANDIDATE FOR THE DEGREE OF DOCTOR OF EDUCATION

Jillian Skelton, Ph.D., Faculty Chair Dissertation Committee Dion Jones, Ph.D., Content Specialist Quincey Daniels, Ph.D., Content Reader Secondary Teachers' Descriptions of Blended Learning and Professional Development:

A Case Study

Melinda S. Payton

# Concordia University-Portland

College of Education

Dissertation submitted to the Faculty of the College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in

**Higher Education** 

Jillian Skelton, Ph.D., Faculty Chair Dissertation Committee Dion Jones, Ph.D., Content Specialist Quincey Daniels, Ph.D., Content Reader

Concordia University-Portland

# Abstract

Teachers who were born before the proliferation of computers are a large part of the education workforce. Therefore, it is important to understand how that group of teachers describes the use of technology in their classroom, as well as professional development that they have taken which focused on the implantation of blended learning in their classrooms. The purpose of the qualitative descriptive single case study was to understand how teachers describe technology and blended learning in their classrooms, as well as their descriptions of professional development that focuses on technology regarding blended learning. The overlying research question for the study was how teachers who were born outside the digital age describe technology as it related to blended learning. The underlying research questions were how do teachers describe professional development that focusses on technology and blended learning, and how do teachers describe the use of blended learning in their classroom? The sample included secondary teachers who were born outside of the digital age who taught in an urban school district. Data collection was done in three parts: an online questionnaire, semistructured interviews, and filed notes. The results of this study described how teachers who were born outside of the digital age use technology with their classes, and how professional development has influenced the implementation of blended learning in their classes. Recommendations for future practice with professional development are presented.

*Keywords*: blended learning, technology, digital age, professional development, secondary level, urban district, teachers, computers, Schoology

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# Dedication

Through God, all things are possible (Matthew 19:26). The Lord has truly blessed me with the most amazing people and educational experiences. I dedicate this work to those who have led me and taught me so much through the years, and to my students, past, present, and future. You can do anything you set your mind to doing; the sky is the limit.

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I am so thankful for the many people who have helped and supported me through this educational journey. I have been blessed to work with the most amazing people and support. God has blessed me by putting some of the most fantastic people in my life to help guide and shape me into the person and scholar that I have become.

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# **Chapter 1: Introduction**

# Introduction

In the last decade, the use of technology in the classroom has increased dramatically, with the proliferation of computers and high-speed internet accessibility (Cuban & Jandric, 2015). These changes have affected education by creating an influx of information available on-demand (Draves, 2015). Computer usage has grown drastically since 1981, when the first computers were introduced into the classroom. (Parker & Davey, 2016). By 1997, 98% of schools had computers in classrooms, but teachers did not believe that they had adequate training on the usage of computers (Parker & Davey, 2016). Therefore, many of the teachers that had computers in their classrooms were reluctant to make use of them at that time (Parker & Davey, 2016). Currently, the issue is not the number of computers per classroom or students, but rather the students' ability to utilize these computers, as well as high-speed infrastructure to connect these devices (Carver, 2016). The evolution of the use of technology has changed education over the last century, and the impact of the use of technology has improved the exchange of knowledge and information (Draves, 2015).

Professional development or training still seemed to be an issue that plagued the usage of technology in the classroom, as many teachers did not utilize the technology at their disposal (Carver, 2016). Many teachers stated that they would use technology more often if they were more comfortable with both the hardware and programs (Carver, 2016). The amount of computer training that a teacher has had directly influences the teacher's comfort with the usage of that specific program or piece of technology (Carver, 2016). If a teacher is not comfortable utilizing technology in their classroom, they will be less likely to use it to teach content-driven lessons (Parker & Davey, 2016). Teachers have identified a need for training related to technology so

that they are not only capable of using basic technology, but new advances as well (Roland, 2015). Moreover, teachers wanted and needed professional development and training to become inspired to digitize their classroom activities (Roland, 2015).

The digital age, also known as the information age, is defined as the time when most information is digitized and there is heavy use of computers and technological devices used to promulgate information (Prensky, 2011). Many teachers currently teaching were born before the digital age and therefore have a different perception, description, and understanding of technology than those born in the digital age. The purpose of this qualitative case study is to understand the attitudes, descriptions, and perception of teachers who were born before the digital era and how their description of technology affects the implementation of blended learning at the secondary school level. Hung (2015) explained that there is a need for more research on the importance to understand teachers' attitude and perceptions of technology and, how it influences the way teachers use technology to structure their classes.

As many teachers who were born outside of the digital age are required by their districts to implement blended learning in their classroom, it is paramount to understand how they describe professional devlopment as it relates to technology and blended learning. Maciá and García (2016) explained that there is still arguments as to how professional development should be conducted. Furthermore, it is not fully understood how online professional networks affect how teachers learn (Maciá & García, 2016). Therefore, it is necessary for research to be conducted to further understand how online or blended learning professional development is described by teachers.

## Background, Context, History, and Conceptual Framework of the Problem

In order to better understand the problem, it is necessary to understand the background context, history, and conceptual framework of the problem. The history of blended learning must be evaluated in two ways: improvements in technology and computer usage and distance education. The expansion of computers, programs, and the internet are part of the whole picture, but the other half comes from a shift in time and place of learning. The concepts introduced in this section will be further explained in Chapter 2. This chapter serves as an overview and introduction of topics and information that will be explained in more depth and detail as they relate to the background, context, history, educational theory, and conceptual framework of the problem.

**Background and history.** Technology has changed the way that teachers teach and students learn (Draves, 2013). There is a plethora of information available through the use of the internet, and this changed how students understand new concepts and gain knowledge (Draves, 2015). Roland (2015) explained that students learn more in classrooms that utilized computers, and had a better attitude toward computers and other forms of technology if they utilized it in classes at school.

The first computer was conceptualized in 1937; it was the first attempt to build a computer without gears and shafts (Steitz, 2006; Zimmerman, 2017). The second computer was named Colossus and was built for military use (Zimmerman, 2017). These computers were not readily available and they could only perform one task (Zimmerman, 2017). Early computers, which weighed almost 30 tons, are ancient relics compared to today's lightweight, compact designs (Steitz, 2006; Zimmerman, 2017). These computers did not communicate with each

other and were only able to run one program at a time (Zimmerman, 2017). The cost, availability, and size of early computers prevented them from being used in the classroom.

The 1980s brought a new wave of computer enthusiasm in education with the use of the personal computer (Parker & Davey, 2016). By this time, computers were much smaller and more cost-efficient (Parker & Davey, 2016). New teachers, who had used computers in their university classes for the first time, also became a driving force in the use of computers in education (Parker & Davey, 2016). A new influx of teachers who had been exposed to the use of computers through their university classes ushered in a new era of technology into the classroom, thus utilizing the most current technology available. This group of teachers was born outside of the digital age, yet many of them embraced the new technology they had used in college and wanted to use it in their classrooms to help their students. These teachers paved the way for later use of more advanced computers and technology as it became available.

**Conceptual framework**. Two theoretical perspectives frame the use of blended learning in secondary education: connectivism, and guided didactic conversation. (Lokey-Vega, Jorrín-Abellán, & Poutteau, 2018). A conglomeration of these theories helps to explain why blended learning works for students at many different levels. Connectivism specifically addressed the use of computer technology and the internet to learn. Guided didactic conversation was not specifically intended to explain blended learning, as they predate the proliferation of computers in education, but focuses on the relationship between teacher and student, as the teacher guides the student to an understanding of the content that is presented.

Connectivism, as a theory, can be used to describe why blended learning is successful. The basic definition of connectivism is that knowledge is found through diversity of information (Siemens & Downes, 2015). Connectivism explains how the incorporation of technology helps

learners, through the use of technology, and transcends distance and time (Siemens & Downes, 2015). The use of the internet allows students to communicate with other students in different parts of the world instantly (Draves, 2013). Connectivism explains how students learn from one another in class and gain a deeper understanding of the content through those interactions.

Guided didactic conversation is a theory introduced by Börje Holmberg in 1983 (Lokey-Vega et al., 2018). Guided didactic conversation can be defined as the conversation between teacher and student, where the teacher leads the student to discover of new information (Lokey-Vega et al., 2018). The idea behind Holmberg's argument was that the teachers and students had a discussion like interactions through distance education (Lokey-Vega et al., 2018). Holmberg applied the idea of a guided conversation to both the traditional classroom, as well as distance learning (Frank & Sharon, 2015). When applying this approach to blended learning, it is easily translated through the use of discussion boards or other assignments where the teacher gives the student direct feedback (Frank & Sharon, 2015).

Connectivism and Guided didactic conversation theroy explain the key components of what made blended learning successful in modern education. Connectism stated that knowledge is ever changing, and what was known yesterday will change with new understandings, and sociatal changes tomorrow (Baker, 2012). Guided didactic conversations stated that new information should be easily to find and the teacher has a friendly conversation to help students comprhend what it being presented (Holmberg, 1987). Therefore, both theories can be utilized to explain how and why blended learning is implemented and how the teachers perform in a blended learning environment.

# **Statement of the Problem**

It is not known how teachers in urban secondary schools, who were born outside of the digital era, describe technology or how it affects the implementation of blended learning at the secondary school level. Further research is needed to understand how professional development influences this group of teachers' descriptions of the use of technology and more, specifically, the implementation of blended learning in their classrooms. Huang (2016) explained that more research is needed to understand teachers' descriptions of blended learning. Therefore, this research was designed to understand the way teachers born outside of the digital era describe technology and the way it is implemented into their classroom though the use of blended learning.

## **Purpose of the Study**

The purpose of this qualitative descriptive case study is to understand how urban secondary school teachers, who were born outside of the digital era, describe the use of technology as well as professional development related to technology and blended learning, and how those descriptions influence the implementation of blended learning in their classrooms. Technology has become a critical part of the classroom (Draves, 2013). Therefore, it is paramount to understand how teachers describe the use of technology as it is related to blended learning, as well as professional developments that focus on technology and blended learning.

### **Research Questions**

R1: How do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom?

R2: How do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom?

The first research question addressed not only the teachers' understanding of how technology implementation can and did affect their classroom, but also the teacher's knowledge of technology and how they use it in their classroom. Hung (2016) explained that more research needed to be conducted regarding teachers' descriptions regarding blended learning and technology. This study was designed to collect data on the way that teachers described technology and blended learning as it related to their classes, students, and professional development. By studying teachers' descriptions of blended learning and professional development as it related to blended learning, it will be understood how teachers born outside of the digital era described the use of technology in their classes. At the completion of this research it will also be understood how teachers' descriptions of technology as it related to blended learning opportunities, as well as how professional development that focused on technology and blended learning influenced how teachers implanted blended learning in their classrooms (Dawson & Dana, 2018; Hung, 2016).

The second research question focused on how teachers described professional development as it related to blended learning. Dawson and Dana (2018) explained that there was a discrepancy between the expectations of teachers to use technology and the use of technology for professional development. While experts have noted the limitations of traditional professional development, administrators have been slow to adopt blended learning or online professional development opportunities (Dawson & Dana, 2018). There were many reasons identified that explained the positive aspects of utilizing a nontraditional approach to blended learning for professional development (Dawson & Dana, 2018). For example, teachers noted that they were more likely to be active learners, collaborate with others, and have more time to participate in professional development (Dawson & Dana, 2018). Maciá and García (2016) explained that

there was no body of evidence that explained how teachers who were participants in nontraditional professional development described their experiences. Prior research suggested that professional development had a great impact on teachers' use of technology and blended learning within their classrooms, therefore it is important to understand how teachers describe the professional development opportunities in which they have participated.

# Rationale, Relevance, and Significance of the Study

Many educators today were born before the digital age. These teachers will be in the classroom for many years to come. It has been suggested that technology is a crucial component in helping today's students to be successful (Jose, 2016). However, it is not known how teachers who were born before of the digital age describe the use of technology in their classroom, nor how it affects the implementation of blended learning in their classrooms.

There has been a substantial amount of research on the implementation of blended learning at the college level, but more research needs to be done at the high school and 2-year college level (Helms, 2014; Tang & Chaw, 2016). Interviews need to be conducted with educators to understand the rationale for adopting or not adopting blended learning (Porter & Graham, 2016). Another avenue that impacted teacher perception and description of blended learning was professional development; Carver (2016) explained that there needs to be further research on how professional development has impacted the adoption of blended learning. Continued qualitative research should be conducted through interviews with teachers to understand the expectations teachers had about the use of technology use in their classrooms (Kormos, 2018). Huang stated, "future research on teachers' beliefs, perspectives, and experiences should consider using rigorous qualitative methods sufficiently tailored to the topic under examination" (2015, p. 131). Research is needed to understand further how teachers

perceive and describe their ability to utilize online components of the classroom (Horvitz et al., 2015). The use of qualitative studies explain the why behind the data, which is paramount in understanding what the data means (Edannur & Marie, 2017).

As teachers are encouraged to utilize technology in their classes, it became essential to understand how professional development related to technology was described by teachers. According to Dawson and Dana (2018), a majority of professional developments that focus on technology are still taught in the traditional brick and mortar style classes. Hallissy and Brown (2017) explained that when teachers took professional development over technology in a traditional setting, they then viewed it as a tool to support traditional methods rather than an integrated part of education. However, when teachers partook in online, blended learning professional development, they were more likely to utilize technology as an integrated part of the classroom (Hallissy & Brown, 2017). Therefore, understanding how teachers described professional development as it related to blended learning became an important factor in how teachers implemented blended learning programs, or if they did not implement a blended learning program.

# **Definition of Terms**

**Blended learning.** A method of delivering education through a blend of face-to-face instruction in the traditional classroom, and an online learning platform, which allows the student to access information anytime and anywhere (Tang & Chaw, 2016).

**Differentiation.** Differentiation is an approach to individualized instruction based on students' needs and differences within a class (Miller, Ridgway, & Ridgway, 2019).

**Digital era.** The digital age is also known as the information age and is defined as the time when most information is digitized, and there is heavy use of computers and technological

devices used to propagate information it is considered to be from 1980 to present (Prensky, 2011).

**Digital immigrants.** The individuals who grew up without technology or with limited use of technology (Prensky, 2011).

**Digital literacy.** A person's ability to use technology to communicate, interact, problem solve, and construct new and meaningful digital items (Jose, 2016).

Digital natives. The individuals who grew up immersed in technology (Prensky, 2011).

**Edgenuity.** Edgenuity is a Learning Management System (LMS) with premade classes, which can be used for blended learning or fully online learning; it can also be used for both credit recovery and credit advancement (Edgenuity Courseware, 2019).

**Learning Management System (LMS).** The learning management system (LMS) is an online platform, which is where learners interact with each other as they navigate through the curricula (Tucker, 2012).

**Professional development.** Professional development is how teachers learn how to improve their effectiveness in the classroom, to improve student achievement, and respond to changes in the education system (Dawson & Dana, 2018).

**SAMAR.** An acronym to explain the progression of the implementation of technology. S is for substitution, A is for augmentation, M is for Modification, and R is for redefinition (Ruben, n.d.)

**Schoology.** Schoology is a web-based program which intermingles aspects of social media, which created an online classroom for teachers to assign assignments, track progress and evaluate student achievement (Irawan, Sutadji, & Widiyanti, 2016).

### Assumptions, Delimitations, and Limitations

Simon (2011) explained that there are certain factors that are within the control of the researcher and some that are not. In addition, there are factors that limit the study, either by characteristics that bind the study or the study itself. In this section the researcher will address the assumptions, delimitations, and limitations of the case study.

Assumptions. The researcher assumed that all participants in the study would answer questions honestly. Research data was dependent on participants providing detailed responses to all questions, as well as be willing to participate in interviews after completing the online questionnaire. Therefore, the researcher assumes that the participants are willing to find time to be interviewed and answer questions to the best of their ability. Furthermore, the researcher assumes that participant response are based on the participants' firsthand knowledge of the topic of blended learning and their experiences with technology as far as the implementation of blended learning in their classrooms.

**Delimitations.** The delimitations of this research were location, and the grade-level the teachers taught. Participation was also limited to teachers who had participated in a blended learning professional development at the high school level and two middle school and one high school. The purpose for utilizing these specific campuses and participants, was that they had a general understanding of blended learning and taught at the secondary level. The last delimitation was age; all participants were born prior to the digital era. These delimitations were the criteria that participants had to meet in order to participate in the completion of the online questionnaire, and then subsequently interviewed.

**Limitations**. This research was limited to one urban school district, and only secondary level teachers. Both traditional and special campus teachers were interviewed and included in

this study. Traditional campuses have the option to utilize a blended learning program, but the special campuses are required to implement Edgenuity in their classrooms. Due to the expectations on the special campuses, the data cannot easily be generalized to other school districts. In addition, the high school teachers who participated on regular campuses had gone through a series of professional developments which focused on implementing a blended learning program on the Schoology LMS. Due to that professional development the responses regarding professional development may not be generalized to other districts which have not had such in-depth professional development opportunities.

There has been research conducted on the different aspects of blended learning at the college level and elementary level; there has not been substantial research at the middle and high school levels (Carver, 2016). The limitation of this research was at that it is at the middle and high school level (secondary level) in an urban district, and the conclusions could not easily be generalized to rural districts or other levels. Furthermore, the district which was studied had implemented Schoology as the preferred learning management system (LMS) for blended learning. At the time this research was conducted, only high school teachers were eligible to take part in the professional development provided by the district to implement Schoology into the classrooms.

Another limitation is the researcher's inexperience with interviewing participants. Seidman (2013) explained that the interviewer could influence the participants' answers through the interactions with each other during the interview. Therefore, it is possible that the researcher's bias could be interjected into the interviews by the way that the researcher interacted with the participant, either verbally or nonverbally (Seidman, 2013). The researcher did use formatted questions and asked for details from each of the participants, so that it was the

participants' thoughts and descriptions recorded, not those of the researcher, as recommended by Seidman (2013).

### Summary

Technology has become a vital part of the daily lives of most students; it has also become an integral part of education (Hallissy & Brown, 2017). In many ways, technology offers a common language for teachers and students to communicate new ideas and learning (Miller et al., 2019). By using technology, students are able to collaborate in ways that they cannot do without the use of computers or other forms of technology (Garner & Oke, n.d.). These collaborations help students learn not only the content but life skills as well (Garner & Oke, n.d.).

The use of technology in education has increased, and research is needed to understand the teachers' descriptions of the use of technology and blended learning in their classrooms. Helms (2014) explained that research on blended learning is necessary and will help to give insight into how teachers use technology and the way they describe technology use in their classrooms. Therefore, qualitative research must be conducted to be able to understand how teachers describe their understanding of how technology affects their use of blended learning in the classroom (Kormos, 2018). More research is needed to understand how professional development has influenced teachers' use of blended learning as well as technology in their classroom (Hung, 2016). Qualitative data is necessary to understand how and why teachers described technology usage and blended learning the manner in which they did (Hung, 2016).

#### **Chapter 2: Literature Review**

# **Introduction to the Literature Review**

The purpose of this qualitative case study is to understand the attitudes, perceptions, and descriptions of teachers who were born outside of the digital era and how their description of technology affects the implementation of blended learning at the secondary school level. The digital age is also known as the information age, defined as the time when most information is digitized, and there is heavy use of computers and technological devices used to propagate information (Prensky, 2011). A large number of teachers currently teaching were born outside of the digital age, and therefore have a different perception and understand of technology than those who were born in the digital age. Huang (2015) explained that it is important to understand teachers' descriptions, attitudes, and perceptions of technology and influenced the way teachers use technology to structure their classes. Therefore, interviewing teachers to learn how their descriptions of technology and attitudes toward technology have affected the implementation of blended learning in their classroom is paramount (Kelly & Denson, 2017). There is no doubt that technology has changed education; it is the most significant change since the invention of the printed book (Draves, 2013).

Technology has become a driving force in education; it affects not only how students learn but how teachers teach (Draves, 2013). Computers and the internet have been the most significant change in education since the invention of the printing press (Draves, 2013). Digital learning has changed students from passive to active learners (Tang & Chaw, 2016). Utilizing gamification helps students become deliberate learners so that they are able to direct their learning, with the teacher acting as a coach when needed (Gee, 2016). Teachers are no longer a sage on the stage but rather a guide on the side, and step in when students need help but do not directly give students information (Morrison, 2014). Technology has become a universal language, which is a prerequisite for many of today's jobs (Tucker, 2012). In the 21st century, over 50% of all learning will be online and digitized (Draves, 2013). Therefore, it is paramount not only for the short term but also for future endeavors as well, that students are digitally literate and able to utilize technology to learn and express themselves (Helms, 2014).

Digital literacy was defined as a person's ability to use technology to communicate, interact, problem solve, and construct new and meaningful digital items (Jose, 2016). As a digital society, technology is a requirement not only for many jobs but educational and social situations as well (Tucker, 2012). Digital literacy is a characteristic that is necessary for a person to learn and live in a digital society (Jose, 2016). Most information is transferred through technology (Jose, 2016). For example, businesses now use blended learning as a means of training employees (Huang, Ma, & Zhang, 2008). Approximately 86% of students use technology outside of school, and of that, 94% of students stated that they use technology to study (Tucker, 2012). However, there is a disconnect between the teachers' use of technology-driven homework; 46% of students reported that their teachers assigned technology-driven assignments outside of class. Digital literacy on the part of the teacher and the student are paramount in the success of blended learning.

Chapter 2 will include background to explain the history of blended learning and how technology impacts both the teacher and the student inside and outside of the classroom. The different forms of blended learning will be identified and explained, which include a blend of face to face and a technology driven implementation, Massive Open Online Courses (MOOCs) and gamification of the class. The conceptual framework will focus on Connectivism, and Guided didactic conversation theory. These theories will help to explain how blended learning

builds working relationships between teachers and students, which allow for the transfer of information (Lokey-Vega et al., 2018).

Connectivism is a way to make order out of chaos (Siemens, 2013). Another way to explain the theory of Connectivism is the integration of new learning can only happen through collaborative connections, and that connection happens through technology (Lokey-Vega et al., 2018). Guided didactic theory explains online learning as a guided conversation between teacher and student (Lokey-Vega et al., 2018). Both theories helped to explain not only the ways blended learning can be utilized, but why blended learning help students to learn.

The search for literature was conducted utilizing multiple educational databases, books, and websites, which focused on blended learning, online professional development and digital education. Multiple keyword searches were utilized using the word combination such as: blended learning, hybrid courses, online learning, mixed modality courses, student-centered learning, gamification, connectivism, social-cultural theory, and diffusion of innovation. The results of these searches shaped this qualitative case study by providing guidance in the direction of past and current research. There is a sustained need for research to explore the characteristics of the implementation of blended learning (Helms, 2014). According to Helms (2014) research has shown that there is a necessity for an investigation into how teachers born outside the digital era describe blended learning, and how their view of technology has shaped the implementation of blended learning in their classroom.

#### **Conceptual Framework**

Connectivism and guided didactic theory, can be used to explain why blended learning is successful. Connectivism explains how the incorporation of technology helps learners, as learning is enabled through technology, and transcends distance and time (Siemens, 2013).

Guided didactic conversation theroy explained that learning is a conversation between the teacher and the student (Lokey-Vega et al., 2018). In blended learning classes, students learn, not only from the teacher but also from each other (Smith & Chipley, 2015). It is that interaction between the peers, on discussion boards, or other interactions that would not typically occur if it were not for technology that creates opportunities for interaction, engagement, and learning.

**Connectivism.** Connectivism is a theory that was introduced by George Siemens and Stephen Downes, which criticizes the limitations of behaviorism, cognitivism, and constructivism (Duke, Harper, & Johnson, 2013). Behaviorism, cognitivism, and constructivism do no account for the use of technology in learning (Siemens & Downes, 2015). Connectivism, as a learning theory, explained how technology, more specifically, the internet, has created new opportunities for students to learn (Siemens & Downes, 2015). Furthermore, connectivism takes into account how learning is influenced by technology and online networking (Goldie, 2016).

Prerequisit knowledge is paramount in Connectivism. Underwood (2016) explained that there must be a certain level of knowledge already obtained for a student to link new knowledge to, so that the student can form new understandings. Baker (2012) explained that most basic explaination of Connectivism is sharing of knowledge and understanding. Baker (2012) went on to explain that learnining is no longer an individual and solitaty process, it is now a shared experience and students learn from not only the teachers, but eachother as well.

Learning is a social activity; it occurs when there are interactions between two individuals and does not occur in a vacuum (Duke et al., 2013, Siemens & Downes, 2015). Connectivism recognizes the importance of the teacher within the context of learning but also recognizes the applications of technology and its structures in lifelong learning for both formal and informal circumstances (Goldie, 2016). The original theory was developed by Siemens and

Downes (2015) and asserted that "knowledge and learning knowledge are distributive"; knowledge is not located at one central hub but is instead an exchange of information, networking that occurs in ubiquitously an asynchronously (Goldie, 2016, p. 1065).

Connectivism does not view knowledge as static and innate (Siemens & Downes, 2015). Instead, connectivism approaches learning as an activity that requires networking and connections between individuals, the same way that blended learning requires networking and connections (Siemens & Downes, 2015). Furthermore, connectivism allows for the chaos that is sometimes present at the onset of learning to occur (Siemens & Downes, 2015). Within the theory of connectivism, the individual to finds the patterns and structures that make sense to the individual (Siemens & Downes, 2015). Blended learning is learner-centered, and the learner is responsible for making the connectivism, explains how the use of technology and the interactions that are brought about by the use of technology create networks where learning occurs (Siemens & Downes, 2015). As technology has become a part of learning it must also be reflected in the new learning theories (Siemens & Downes, 2015).

Just as technology has changed in the last 40 years, so has the way that individuals learn (Siemens, 2005). Draves (2013) stated that the internet was the single biggest development in education since the invention of the printing press. Just as learning has changed, so has the workforce and careers that individuals will have (Siemans, 2005). People used to be able to go to school and get training or education in the field that they were going to be entering and that was it, there were few if any changes to the conventional knowledge in most areas (Siemans, 2005). However, the foundational knowledge that people need for careers change rapidly (Siemans, 2005). Therefore, the way that Connectivism described knowledge was like the shifting of

tectonic plates (Baker, 2012). Baker (2012) and Draves (2013) pointed out that the way people learn and where they learn has changed in the digital age.

There are eight principles of Connectivism, which Siemans (2005) identified:

- learning and knowledge are based in differences of opinions,
- learning is a ongoing process of connections,
- learning might exist in non-human applications,
- the capacity to know is more important that why is already known,
- cultivating and sustaining connections is manditory for continuous learning,
- the capability to realize there are connections between disciplines, ideas, and concepts is a fundamental skill,
- precise, and current knowledge is the goal of all connectivist learning,
- and decision-making is a learning process, and changes based on the information the learner currently has, and will change with new knowledge.

These principles shape the way that connectivists interact with students as well as technology. The foundation of Connectivism is that learning is ever changing and evolving.

Connectivism supports the use of blended learning as an educational strategy because it explains the way online communities interact with each other. While technology is one of the key features of blended learning, it is not the most critical factor (Draves, 2013). Instead, interconnection and the ability to relate and learn from peers is the most crucial part of blended learning (Conrad & Donaldson, 2011). Younger students will often sit with multiple students at one computer learning, sharing information, and working through problems together (Draves, 2013; Gee, 2016). This connection, be it in person or on the internet, is the critical piece of blended learning. Connectivism is the foundation portion of blended learning, as it explains how

technology helps students connect and learn, despite not always being in physical proximity to each other.

**Guided didactic conversation theory.** One component of blended learning is that not all learning occurs in a classroom. Tucker (2012) explained that in some forms of blended learning, the student either views new content on their own or work with peers to learn the new content. One of the tools utilized by many teachers in their blended learning courses is the discussion board. Through the discussion board, students interact with both peers and the teacher. Guided didactic conversation theroy described how the interactions between students and teachers support learning (Lokey-Vega et al., 2018). In this theory, there are seven points which Holmberg believed were essential teaching principles (Lokey-Vega et al., 2018). The seven principles that Holmberg describes are building relationships between teachers and student, efficient two way communication between teacher and student, students want to learn and follow the learning processes set forth by the teacher, students and teacher have a friendly atmosphere where learning occurs through conversation, learning is easy to understand and remember, there is a reliable use of media to explain concepts, and lastly the work assigned guided the student to reach the learning target (Lokey-Vega et al., 2018).

Guided didactic conversation theroy addresses many issues that teachers are concerned with when implementing an online program, such as time management and teacher workload, course content, accessibility of content for the students, student isolation, and student motivation (Lokey-Vega et al., 2018). Holmberg (2016) explained that the central part of his theory was the conversation back and forth between teacher and student, as well as the positive relationship that is built despite the distance. Holmberg's (2016) focus was on building relationships between

teacher and student, which would serve as a way of mitigating any possible problems which might arise through distance education.

Holmberg (1983) described seven postulates that were nessessary for learning to occur under Guided didactic conversation theroy. Those seven principles are:

- a personal relationship between the teacher and learner which promotes motivation for the student,
- a well-created set of self-instructional materials with two-way communication,
- enjoyment of academic and studious motivation, which is fundemental to achichieve academic goals and proper study methods,
- a positive environment, language, and principles of pleasant conversations, which relate to the first point,
- messages sent and received are easy to remember and understand,
- messages in conversation can be explained though the media available for distance education,
- and planning and guiding the work are paramount for the organized studn and part of reaching both explicit and implicit goals. (Holmberg, 1983)

These six points are what Holmberg (1983) believed were nessessary for any distance education program to be successful. As blended learning has a distance component, these postulates can be translated to blended learning. For example, it is nessessary for assignments in the online portion to be straight forward and easily understood, so that students are able to complete them outside of the classroom.

There are six possible problems that have been identified with blended learning which can be mitigated through the use of Guided didactic conversation theroy (Lokey-Vega et al., 2018). One of the first issues identified was time management and teachers' workloads (Lokey-Vega et al., 2018). The solution to heavy workloads and time management issues was that the teacher acted as a guide to streamline the vital information with a set of structured discussions and interactions which pointed to the valued information. Secondly, there was a concern about the management of course content (Lokey-Vega et al., 2018). The solution through Guided didactic conversation theroy was that the use of multiple multimedia resources and well-designed assignments help motivate students to complete the assignments as well as to collaborate with their peers (Lokey-Vega et al., 2018). A third problem and solution was the understanding of content by the students (Lokey-Vega et al., 2018). The solution was to make the learning material straight forward so that the learner does not struggle with the original content (Lokey-Vega et al., 2018). Student isolation is another issue that could arise in a blended learning environment (Lokey-Vega et al., 2018). The resolution was that there are specific dialogues that occur between the teacher and student as well as among students themselves (Lokey-Vega et al., 2018). Lastly, student motivation has also been identified as a problem with blended learning courses (Lokey-Vega et al., 2018). When Guided didactic conversation theroy is utilized, the teacher becomes a pivotal part of the learning dialogue by engaging students in a personal and positive way to spark an interest in the subject or content (Lokey-Vega et al., 2018).

Integration of learning theories and blended learning. Blended learning is an extension of what occurs in the traditional classroom and adds an online component. Downes (2010) explained that online learning has a definite beginning and ending, which makes it episodic. In each encounter, students are part of a network of learning which supports positive interactions that resulted in learning (Downes, 2010). The interactions between students improve learning and increase understanding of the content (Holmberg, 2016; McKnight et al., 2016).
The social interactions that are created through the online network increased student comprehension and elevated the rigor of the assessment (McKnight et al., 2016). Connectivism and Guided didactic conversation theroy, both explained why blended learning helped to build communities in classrooms, with positive teacher-student interactions, as well as peer interactions.

Connectivism explained that learning occurs with the interaction between people (Siemens, 2005). Within the virtual classroom, there are strong interactions between peers, as well as student-teacher connections (Draves, 2013). These connections are the focus of both Connectivism and Guided didactic conversation theroy (Lokey-Vega et al., 2018). Blended learning allowed students to not only interact with each other more than in the traditional classroom setting, but it also allowed the teacher and the student to have more interaction on a one on one basis (Draves, 2013). Students interact with each other to learn from the social and academic interactions that occur between students within the blended learning setting (Duke et al., 2013). Learning does not occur in a vacuum, but rather through the connections of human interaction and that interaction is bolstered through the digital learning environment. Blended learning offers more opportunity to interact with peers as well as instructors because there is not a time constraint (Draves, 2013). For example, if students posted on a discussion board, they had time to consider their response as well as read other students posts and respond (Draves, 2013). Each of these theories has explained why blended learning is thriving in many classrooms for many students.

Guided didactic conversation theroy puts the teacher in a different place. Teachers are no longer the center of student learning. Morrison explained that teachers are no longer the "sage on the stage" they are now the "guide on the side" (2014, para. 1). Blended learning puts the student

in charge of their learning, and the teacher helps to guide them instead of telling them what they need to know. Guided didactic conversation theroy explained how teachers build positive working relationships with students and use those relationships to help guide students' learning.

Both Connectivism and Guided didactic conversation theroy explained key features of blended learning. However, the main focus for both theories, is the relationships and connections formed between learners and their peers, as well as the learner and the teacher. Holmberg (1983) explained that the relationship between teacher and student creates a positive learning environment where teachers are able to connect with students in a positive way and guide them throuugh content which is easily understood and invites the student to draw their own conclusions. Connectivism also focuses on the connections required for learning and goes on to explain that learning occurs through those connections and is based on prior knowledge being assibled with new knowledge (Baker, 2012).

#### **Review of Research Literature and Methodological Literature**

Much of the literature explains the different forms of blended learning and how they are used. The focus is on the use of technology in the classroom, and how it has changed the way that teachers teach, and students learn (Draves, 2013). Digital learning has transformed students from being passive learners to active learners, where the teacher acts as a coach when needed (Gee, 2016). There has been little research on how and why secondary schools adopt blended learning (Porter & Graham, 2016). However, the application of technology has shown to improve critical thinking, problem-solving, and communication skills in K–12 classrooms (Kormos, 2018). While most studies documented improvement for students through the use of blended learning programs, there is still cynicism among many teachers, administrators, and students as to if blended learning allows students to learn as much, if not more than they would

in the traditional brick and mortar classrooms. While it was documented that there are many barriers to implementing technology, there are also many reasons why leaders believe that by implementing blended learning programs student learning would improve. As schools began to implement various programs, the teacher perception and level of implementation are paramount to failure or success of a program.

**Barriers to implementation**. Carver (2016) explained that barriers are broken into two categories, first- and second-order barriers. First-order barriers are those that are outside teacher control, whereas second-order barriers are those within a teachers' control (Carver, 2016). Examples of first-order barriers were lack of funding and equipment (Carver, 2016). Second-order barriers have to do with teacher perception of technology (Carver, 2016). Classification of the type of barrier is paramount, as first-order barriers are not likely to change and can impact second-order barriers over time. For example, if funding changed and teachers had an opportunity to have computers in their classroom, they would not be as likely to use them, because of the teacher's perception as well as lack of knowledge and skills (Carver, 2016).

There are also different levels of implementation that affected how teachers perceived and described blended learning (Porter & Graham, 2016). There were three stages of adoption noted as schools adopted blended learning programs: "awareness/exploration, adoption/early implementation, and mature implementation/growth" (Porter & Graham, 2016, p. 750). Teachers who self-identified as early adopters usually had a higher level of confidence with technology and were more likely to implement blended learning than those who identified as being aware and exploring (Porter & Graham, 2016).

One of the concerns that teachers addressed was that technology would not be accessible or useable (Carver, 2016; Horvitz, Beach, Anderson, & Xia, 2014; Windes & Lesht, 2014). The

prevailing concern among educators was not only a lack of hardware, such as computers and internet access but software as well (Horvitz et al., 2014; Windes & Lesht, 2014). It would be hard to implement a program in which the teacher did not have the essential tools that they needed for success. The lack of technology has led to a "digital divide" (Kormos, 2018). The digital divide was defined as unequal access to technology among schools, students, and teachers (Kormos, Hiew, & Chew, 2016). The digital divide has created a situation of haves and havenots with regard to technology. The absence of technology or its lack of availability affected how teachers described the integration of technology into their classrooms (Kormos, 2018).

Unfortunately, the problem is not only a lack of having computers or software that create a barrier to implementation. Schools that did not have funds for equipment and infrastructure also struggled with teachers' and students' ability to utilize technology (Horvitz et al., 2014). Access to technology was the first and most significant barrier that had to be overcome for blended learning to be implemented (McKnight et al., 2016). Access problems occurred in both rural and urban school districts, but for different reasons (Kormos, 2018). However, a common problem with both rural and urban school districts was the lack of funding for technology-based applications (Kormos, 2018). Since there was little to no technology available, both teachers and students were not able to learn how to use different programs effectively. Teachers perceived and described other barriers to the implementation of blended learning in their classrooms as well as the ability or lack thereof.

Another barrier that teacher described was the ability to work with students through the use of technology (Carver, 2016; Horvitz et al., 2014; Windes & Lesht, 2014). Many teachers cited cultural attitudes toward technology as a problem for students (Carver, 2016; Horvitz et al., 2014). Furthermore, teachers were concerned about student perception, and would the student

believe that they were receiving the best quality education possible (Windes & Lesht, 2014). There is evidence that many students struggled with the use of education technology, despite the technology having been integrated into their lives (Tang & Chaw, 2016). Digital literacy, as well as independent learning skills, are a prerequisite for student success (Tang & Chaw, 2016). However, these skills can be learned, and through digital learning, there was an increase in engagement (Helms, 2014).

Some teachers described a lack of support and cited this as a key reason they did not implement blended learning in their classroom (Horvitz et al., 2014; Windes & Lesht, 2014). It was critical that the administration gave unwavering support for teachers who wanted to try using online methods in their classes (Windes & Lesht, 2014). Part of providing support was to provide training for teachers on both software and hardware to bolster teachers' digital skills (Hiew & Chew, 2015). Professional development proved to be a key component of providing support, as well as continued training (Carver, 2016). When teachers are given training on new hardware as well software and other programs, it helps them to pass that understanding on to their students and bolsters the teachers' ability to embed new technology into the curriculum.

Recent research has shown there is a perception of diminishing returns in blended learning. Windes and Lesht (2014) found that some community college professors believed that the quality of online education has decreased. Tang and Chaw (2016) found that more students preferred traditional learning to online learning. Furthermore, there is the perception that by utilizing blended learning, the student is not receiving the highest quality of educationn (Tang & Chaw, 2016). While many schools have embraced technology use in the classroom, and there has been a "digital revolution" there has not been a change in standardized test scores (Carver, 2016, p. 110). Therefore, it is critical to understand that it is not the acquisition of technology, but

rather how the teacher has implemented it in the curriculum that affects the outcome (Carver, 2016).

While technology is a vital part of most students' lives, those who were born after 1995 still had difficulty using technology in an educational setting (Hiew & Chew, 2016). In some instances, disruptive technology, or the use of mobile phones in the class, was prohibited by the teacher because the teacher did not believe or understand that phones can be used positively with blended learning (Windes & Lesht, 2014). By excluding mobile phones as a resource for students in a blended learning environment, it showed the lack of technological understanding on the part of the teacher, which in turn did not benefit students (Windes & Lesht, 2014).

The result of most teaching endeavors is to pass knowledge to the students; student perception affects the likelihood of success. Students reported several actions that teachers took in blended learning programs that created negative perceptions for students (Helms, 2014). Lack of response to emails was cited as one of the most significant issues that frustrated students in a blended learning environment (Helms, 2014). Another issue that upset students were when there was a replication of information between tradition class meetings and online meetings (Helms, 2014). Students also became frustrated when they were expected to complete an online task that they did not know how to do and it was not explained by the instructor (Hiew & Chew, 2016). In addition, when teachers changed face to face meetings times without warning or did not update course information, it caused students to have an unfavorable view of the course (Helms, 2014). The adoption of blended learning is not always a positive experience for students and teachers (Tang & Chaw, 2016).

There are documented barriers to the implementation of blended learning (Porter & Graham, 2016). Some of them can be overcome through training and support, while others, such

as lack of funding, equipment of infrastructure cannot be overcome by the teacher (Porter & Graham; Helms, 2014). It is paramount to understand that not all teachers have a favorable view of blended learning despite barriers that can be overcome (Edannur & Marie, 2017). A noted difference of opinions between whether to use technology or not, was the teachers' pedagogical preferences (Edannur & Marie, 2017). Training impacted the teachers' perception of the benefits, but it did not predict teachers' endorsement of the usage of blended learning in the classroom (Edannur & Marie, 2017).

Motivation to implement blended learning. Just as teachers perceived barriers to the implementation of blended learning, they also found reasons to motivate them to include technology as part of their course. Many teachers believed that by implementing technology through blended learning programs, they were helping students become better students as well as improving the students' learning experience (Windes & Lesht, 2014). Many administrators had a favorable view of blended learning and online teaching, as they believed that it improved student achievement (Windes & Lesht, 2014). Teachers were responsible for creating a learning environment which fosters student learning and performance (McKnight et al., 2016). By utilizing technology, campuses could offer more choices to students and encourage continued education (Windes & Lesht, 2014).

One reason that teachers were motivated to build blended learning programs was the enhancement of instructional designs (Windes & Lesht, 2014). The use of blended technology in the classroom created an environment that heightened both teaching and learning experiences (Hiew & Chew, 2016). In addition, research has shown that students generally earn higher grades in blended learning environments than they do in fully online classes or traditional classes (Helms, 2014). Students were engaged in blended learning programs when they were developed

with the intention of challenging students positively, through engaging and effective instruction, both online and in-class (Tang & Chaw, 2016).

Blended learning allowed students to have on-demand access to learning so that they could learn when and where it was convenient for them (Draves, 2013). Through the various uses of technology, students can learn anywhere, and in a myriad of different ways (Tang & Chaw, 2016). Students are able to learn asychrounsly, which allowed them to learn at a time that is conviniet for them (Draves, 2013; Tang & Chaw, 2016). Furthermore, students have time to think through their responses to peers or assignments, rather than being limited to the time within the school day, as is the case with traditaional brick and mortar classes (Draves, 2013).

Through blended learning, there is an increase in communication between teacher and student and student to student. Communication is a critical factor in students' perception of a course (Helms, 2014). Through the use of discussion boards, teachers were able to create online communities where students interacted with their peers more than they would have had the course been only faced to face (Blau & Shamir-Inbal, 2016). Students were able to work asynchronously, posting to the discussion boards after having time to think through their response, which made discussions more vibrant (Helms, 2014).

**Factors related to teachers' perceptions and descriptions**. There are factors outside of the advantages and disadvantages of the implementation of blending learning programs that affect teacher perception. Roughly 97% of teachers in the United States have at least one computer in their classroom, but only 40% of them use the computer for instruction (Carver, 2016). One reason proposed for the lack of use of technology was the age of the teacher (Carver, 2016). While a majority of teachers considered themselves technology proficient, regardless of

the number of years they have been teaching, many overestimated their actual ability (Horvitz et al., 2014).

There are many recommendations that have been made for future research in the area of blended learning. A significant amount of research on the implementation of blended learning at the college level, but more research needs to be done at the high school and 2-year college level (Helms, 2014; Tang & Chaw, 2016). There need to be interviews conducted with educators to understand the rationale for adopting or not adopting blended learning (Porter & Graham, 2016). Another avenue that impacts teacher descriptions and perception of blended learning was professional development. Carver (2016) explained that there should be further research on how professional development has influenced the adoption of blended learning. Continued qualitative research should be conducted through interviews with teachers to understand the expectations teachers had about the use of technology use in their classrooms (Kormos, 2018). Huang stated, "future research on teachers' beliefs, perspectives, and experiences should consider using rigorous qualitative methods sufficiently tailored to the topic under examination" (2015, p. 131). Research is needed to understand further how teachers perceive their ability to utilize online components of the classroom (Horvitz et al., 2014). Qualitative studies explained the why behind the data (Edannur & Marie, 2017).

Based on the recommendations of prior research, more research is needed to explore teachers' descriptions and perceptions of blended learning (Helms, 2016; Kormos, 2018). Research should be conducted to explain teachers' perceptions of blended learning, despite not having had the same technology when they went to school (Helms, 2016). Therefore, additional research to understand the attitudes, perceptions and descriptions of teachers who were born prior to the digital age is necessary.

Professional Development in a Digital Age. Many districts encouraged their teachers to utilize technology within their classrooms; however, when it came to professional development, much of the learning occurred through traditional means (Dawson & Dana, 2018). Lynch (2019) explained that many teachers have become digitally literate through advanced education, some go out and learn on their own, but a vast majority of teachers learn new programs and technology through professional development. Darling-Hammond, Hyler, and Gardner (2017) explained that effective professional development must have these key elements: content-driven, active learning, supports job alike collaboration between educators, professional development leaders modeled effective practices, provided time for coaching and expert assistance, allowed teachers time to reflect and offer feedback on what they learned, and was continued throughout the school year. However, Darling-Hammond et al. (2017) still advocated for traditional face to face professional development. Maciá and García (2016) noted the use of informal professional learning communities (PLCs), which connected digitally had positive results on teacher learning. Furthermore, it was discovered that teachers learned more when they were able to collaborate through online PLCs (Maciá & García, 2016).

#### **Review of Methodological Issues**

A substantial body of research that has been conducted regarding teachers' perception of technology integration has been qualitative. Case studies have been conducted by many researchers and helped to provide an understanding of the teachers who had chosen to implement technology and those who have not (Vogt, 2014). As recommended by current research, a qualitative case study is needed to learn why teachers' have the perceptions they do regarding blended learning (Kormos, 2018). Qualitative research was used to understand how people feel and why they feel the way they do (Merriam, 1998). It was necessary to use qualitative research

to describe teacher perception, as the goal was to understand why the teacher feels the way that they do and the way in which they describe technology.

There were also limitations to previous research which must be considered. To be able to generalize the results of the research, there should be enough diversity in the sample so that it gives an accurate representation of the population (Tang & Chaw, 2016). In the research mentioned above, the focus was on specific groups, which made it difficult to generalize the results to other areas of education. Through qualitative case studies helped to build the understanding of the why's and how's, in some cases there were not ways to generalize the results to other levels or locations. However, without the explanations provided by qualitative studies, quantitative results only told a portion of the whole story (Hung, 2016). Therefore, to have a full understanding of teachers' perceptions of the implementation of blended learning, a qualitative study must be completed to understand teacher perception.

#### Synthesis of Research Finding

Previous research in the area of blended learning revealed a need for more qualitative research about how teachers describe the use of blended learning in their classrooms, as well as how they describe professional development that focused on blended learning. According to Kormos (2018), qualitative research in the form of interviews needs to be conducted to give additional insight regarding teachers' descriptions of technology. Helms (2014) explained that research regarding blended learning needs to be undertaken at other levels than 4-year universities. Maciá and García (2016) explained that while research has been conducted on teachers' descriptions of professional development regarding technology, research needed to be conducted to learn how teachers implement what they learned in those professional developments. Qualitative research regarding why teachers use specific technologies, as well as

their descriptions of their attitudes and beliefs regarding blended learning are also areas that Hung (2016) explained needed more research. Tang and Chaw (2016) stated that there is a need for more research in secondary schools, which focuses on the factors which contribute to teachers implementing effective blended learning programs.

After synthesizing the current research on blended learning, it became evident that more research was needed to be conducted at the secondary school level. Furthermore, it became evident that teachers' descriptions of how they used technology and blended learning in the classroom also needs more research. The description of the use of blended learning includes the professional development that each of the teachers took in order to become interested in implementing a blended learning program in their classroom. From the current research, two research questions were developed. The first was how does the secondary school teacher describe their understanding of how technology affects the implementation of blended learning in their classroom? The second question is, how does professional development influence teachers' description of the use of blended learning and the use of technology in the classroom?

## **Critique of Previous Research**

Previous research has focused on defining what constitutes blended learning. A majority of the current research has focused on college level. The use of blended learning in the K–12 grade levels has not been researched as thoroughly as it has for college level (Porter & Graham, 2016). A substantial body of research that has been conducted regarding teachers' perception of technology integration has been qualitative. Case studies have been conducted by many researchers and helped to provide an understanding of the teachers who had chosen to implement technology and those who have not (Vogt, 2014). As recommended by current research, a qualitative case study is needed to learn why teachers' have the perceptions they do regarding

blended learning (Kormos, 2018). Qualitative research was used to understand how people feel and why they feel the way they do (Merriam, 1998). It was necessary to use qualitative research to describe teacher perception, as the goal was to understand why the teacher feels the way that they do and the way in which they describe technology.

There were also limitations to previous research which must be considered. To be able to generalize the results of the research, there should be enough diversity in the sample so that it gives an accurate representation of the population (Tang & Chaw, 2016). In the research mentioned above, the focus was on specific groups, which made it difficult to generalize the results to other areas of education. Through qualitative case studies helped to build the understanding of the whys and how's, in some cases there were not ways to generalize the results to other levels or locations. However, without the explanations provided by qualitative studies, quantitative results only told a portion of the whole story (Hung, 2016). Therefore, to have a full understanding of teachers' perceptions of the implementation of blended learning, a qualitative study must be completed to understand teacher perception.

### **Chapter 2 Summary**

Technology has impacted the way students learn, and teachers teach (Draves, 2013). Many teachers have implemented blending learning programs to help their students become more engaged with the content and create more individualized lessons (Windes & Lesht, 2014). Through the implementation of blended learning programs, teachers have found that there were ways to overcome perceived barriers (Windes & Lesht, 2014). First-order barriers, such as funding, slow connections, or lack of hardware, prevented teachers from implementing blended learning programs as well as lack of funding or technology (Carver, 2016). Second-order barriers, such as attitude and ability, could be changed (Carver, 2016).

Many of the barriers that have prevented teachers from implementing blended learning in their classroom have been overcome in recent years. Technology has improved, as has funding for hardware and software needed for digital literacy (Kormos, 2018). While access has increased, the need to be able to understand and utilize technology has also increased, which is evident through the fusion of technology and state standards (Kormos, 2018).

Teachers' attitudes and perceptions regarding blended learning impacted their implementation of technology in their classrooms. Technology has become ingrained in people's daily lives and is also becoming a fundamental part of education (Tang & Chaw, 2016). There is a growing frame of research regarding how technology is utilized to improve learning environments; little is known about the reason why teachers who are not digital natives choose to use blended learning in their classrooms. Therefore, research is needed to explore the attitudes, perceptions, and descriptions of teachers who did not grow up in a technology-rich environment, but use it in their classroom to engage students' learning.

#### **Chapter 3: Methodology**

### **Introduction to Chapter 3**

The introduction of computers, the internet, and technology changed education for both teachers and students alike (Draves, 2013). The use of the internet and computers in classrooms has been the most significant change in education since the development of the printing press allowed for the mass production of books (Draves, 2013). However, the use of technology alone does not guarantee students an education. Instead, a blend of traditional and online coursework offers the best opportunities for deep and meaningful learning (Draves, 2013). Through blended learning programs, teachers combine traditional educational methods with a technology component. Technology has become a central part of the daily lives of both students and teachers (Kormos, 2017). Therefore, technology should be used to help create engaging and meaningful leasons for students (Kormos, 2017). One of the ways that technology is being integrated into classrooms is through the use of blended learning (Tucker, 2012).

Blended learning can mimic social networking and gaming (Helms, 2014). It also creates a strong sense of communication and helps students to become more engaged in their coursework (Helms, 2014). Since blended learning enhances instruction and learning, many teachers are motivated to implement this program in their classes (Windes & Lesht, 2014). The teachers create learner-centered lessons, which help to stimulate a learner's natural curiosity (McKnight et al., 2016). The question that remains unrequited is, how does the teacher's description of blended learning affect how blended learning is implemented in their classroom?

Teachers who were born after 1983 have a vastly different perception of technology than those who were born before 1983 (Tang & Chaw, 2016). Teachers born prior to 1983 are considered to be born outside of the digital age; they were born before the proliferation of

computer technology (Prensky, 2011; Tang & Chaw). Prensky (2011) postulated that there is such a stark difference; he created the labels, digital natives, and digital immigrants. The most significant difference between a digital native and immigrant is the way they utilize technology in all aspects of life (Prensky, 2011)

Teachers born in 1983 would be 36 years old in 2019. The Rule of 80, sets out the rules for teachers to retire in Texas (Eligibility Requirements, n.d.). The Rule of 80 is that the teacher's age and the number of years of service are equal to 80 (Eligibility Requirements). According to the Teacher Retirement System of Texas (TRS; Eligibility Requirements, n.d.), teachers are eligible for retirement when they reach the age of 65, and have a reached the Rule of 80. Therefore, there are still many teachers who were born before 1983 who are still teaching and will be teaching for at least another decade. The focus of this study was teachers over the age of 36, who were still teaching and who have also implemented blended learning in their classroom.

To be able to understand teachers' descriptions, the researcher gathered qualitative data through interviews. Kormos (2018) noted that interviewing participants could offer more insight into their perceptions. Qualitative studies depend on human perception, description, and understanding (Stake, 2010). Therefore, a qualitative case study was the most appropriate form of research to be conducted to understand perception and description of teachnology as it related to blended learning and professional development that focused on technology. This study will examined human perceptions and descriptions, which means that a qualitative study is the most appropriate form of research to be conducted.

It is essential to study how teachers' descriptions and perceptions of technology affect the way they implemented technology in their classroom. While many educators viewed technology as an asset to education, fewer reported using it consistently (Carver, 2016). The study of how

teachers' descriptions and perception influenced the way they used technology meant a qualitative study was chosen. The study of the statistics alone would not explain whether teachers' attitudes about blended learning affect whether or not they implemented it in their classroom (Patton, 2015). A descriptive case study is a study which described a situation or event in the context of the participants' lives and was used to study the phenomena of teachers descriptions of blended learning and how they implemented it into their classroom, as well as how their descriptions of professional development as it related to blended learning affected implementation (Baxter & Jack, 2008). Interviews with teachers to explain their descriptions and perception about blended learning built a more comprehensive understanding of teachers' perceptions and how it influences the implementation of blended learning.

## **Research Questions**

These questions increased the body of knowledge regarding teachers' descriptions of the usage of technology in their classroom. The information generated from this study is paramount in answering the question, how teachers' descriptions and perceptions affect the implementation of blended learning programs. In addition, it is important to understand how teachers describe the professional development opportunities that relate to blended learning, specifically those with an emphasis on blended learning. While the two questions might seem loosely related, they both deal with how humans learn and interact with new content. The focus of this study was to find out why these teachers, who did not grow up immersed in technology, are now utilizing blended learning with their classes.

The research questions for this qualitative case study were as follows:

R1: How do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom?

R2: How do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom?

The research questions were investigated using three instruments: questionnaires, interviews, and field notes. The questionnaire began with a consent form, followed by demographics, and open-ended questions regarding the use and description of technology in the classroom and implementation of blended learning. The demographics section asked about the participant's age, gender, the number of years they have taught, subject area taught, and grade taught. Open-ended questions asked the participants how frequently technology is used in their classrooms, what form of technology is utilized, how much professional development the participant has attended, how beneficial was the professional development, does technology improve students' understanding of the subject matter, and what forms of blended learning had the teacher implemented. The last question asked the participant if they are willing to be interviewed. The interviews focused on the forms of technology and usage of blended learning and professional development taken by the participant. The sources of data provided triangulation for each of the research questions.

#### **Purpose and Design of the Study**

This study used qualitative methodology to understand the participants' description of the use of blended learning and technology in regard to the implementation of each into their classroom. The thick and rich descriptions, which are characteristic of qualitative research, were needed to understand the perceptions of secondary teachers regarding technology. Baxter and Jack (2008) explained what people believed to be the truth is dependent on their perception. As this study focused on the descriptions and perceptions of teachers, it naturally lent itself to a descriptive case study. Furthermore, the research explored a "real world" case, which was the

implementation of blended learning in classes with teachers who were born outside of the digital era, therefore a case study was the best format for the research that was conducted (Yin, 2014, p. 15).

Qualitative studies focus on the understanding of human experiences and how these experiences shape a person's view of reality (McLeod, 2017; Merriam & Tisdell, 2016). Quantitative research concentrates on a set reality, with numerical data to explain it (McLeod, 2017). This study focused on how teachers describe their understanding regarding technology; qualitative research may better explain how the participants' perception of technology impacts the way they implement it in their classrooms. While there are many types of qualitative studies, the common thread is that the data is empirical rather than numerical (McLeod, 2017).

Merriam and Tisdell (2016) noted that there are six forms of qualitative research which include basic qualitative research, phenomenology, grounded theory, ethnography, narrative analysis, and qualitative case study. Creswell (2013) stated that the forms of qualitative research are defined as the characteristics and the way in which the research questions are asked, as well as how the data is collected (Merriam & Tisdell, 2016). Stake (2010) explained that while qualitative research has a varieity of types of research, the common thread is that qualitative research is descriptive in form.

Basic qualitative research is conventional in education (Merriam & Tisdell, 2016). Qualitative research is a broad category with the common thread that the participant's reality as constructed through interactions with others (Merriam & Tisdell, 2016). The focus for researchers is on how people construe their experiences, how they view the world around them, and the meaning they give to their experiences (Mirriam & Tisdell, 2016). This study had multiple methodologies considered as potential tools to garner data.

Phenomenology described the specific experience and its meaning (Creswell, 2013). The focus is on the lived experience (Merriam & Tisdell, 2016). Phenomenology does not fit this research, as the study is not focused on a central meaning of shared experience through culture (Mirriam & Tisdell, 2016). There is not an essence to be described in the description of blended learning. Therefore a phenomenological study would not be prudent for this reseach.

Ethnography is focused on human society and culture (Mirriam & Tisdell, 2016). Additional characteristics include studying shared behavior, language, and cultural themes (Creswell, 2013). While technology is embedded in American culture, it is not the focus of this study. The researcher was not focusing on behavior that is displayed across the culture, but rather the behavior and views of a specific group, which does not meet the criteria for an ethnography.

Grounded theory research is used to produce, advance, and bolster theory (Creswell, 2013). The focus of grounded theory research is to build theories (Merriam & Tisdell, 2016). While grounded theory researchers use interview and observations, the end goal of the research was different from the end goal of this study. This study is not attempting to create educational theories, but rather to study a specific set of teachers. Therefore, grounded theory is not the form of qualitative research appropriate for this study.

Narratives used stories to describe the experiences that a person or groups have had (Creswell, 2013). The researcher gathers stories about the participants and the experiences that they have lived through, and sorts the information in chronological order (Creswell, 2013). The focus of narrative inquiry is to understand how the story relates linguistically, psychologically, biographically, and historically to a culture (Mirriam & Tisdell, 2016). Narrative research used the participant's life events to understand how it affects the person and culture (Mirriam & Tisdell, 2016). While every person has a story about technology, it is not the narrative that was

the focus of this research, but rather the teachers' descriptions of technology. It is expected that through interviews, the participants will use narratives to explain why they have the perception about technology, there is not an overreaching cultural theme to these stories.

Qualitative case studies are used to define specific characteristics (Merriam & Tisdell, 2016). Case studies focus on a single or collective case, event, process, or individual (Creswell, 2013). Case studies can include more specific categories, as described by Baxter and Jack (2008). This research is best categorized as a descriptive case study, as the research focuses on a real-world issue that a specific group of teachers experienced. The research then described how and why teachers born outside of the digital age feel about technology implementation in the classroom and whether their perception of technology inhibits their use of blended learning. Therefore, the case study method is most appropriate for this study.

Hung (2015) explained that qualitative research is needed to explain why teachers have a certain perception regarding the implementation of blended learning and technology as a whole. The thick and rich description provided through qualitative studies helps to explain the reason behind the teachers' perspectives better, which was their descriptions of blended learning as it realted to technology and professional development. Qualitative research has been recommended by other researchers who have researched this area (Huang, 2015; Tang & Chaw, 2016; Vogt, 2014).

Research conducted using case studies attempts to answer the questions of how and why, and focusedon a contemporary phenomenon (Yin, 2010). Wyatt (2015) stated there is a need for interviews when conducting research, because they provide a thick and rich description of the participant's descriptions and perceptions. The researcher can only gather data and information from the participants and had no control over their thoughts or beliefs (Yin, 2010). Besides, the

primary goal of the research using a qualitative case study is to understand how people construe the experiences they have had and how it fits into the person's viewpoint or Weltanschauung (Merriam & Tisdell, 2016). By studying how teachers described technology, and how it is implemented in their classroom, it could create a better understanding regarding urban high school teachers' attitudes and perceptions about the integration of technology into their classroom.

## **Research Population and Sampling Method**

This section describes the population and sample selection for this study. The general population for this study included teachers who were currently teaching at the secondary level (middle and high school) and were born before 1983. The target population for this study was teachers who utilize technology through the use of blended learning in their classrooms. In addition, the target population for this study was teachers in the United States, who teach at the secondary level and utilize blended learning. These teachers are a small portion of the number of teachers globally that used blended learning in their classroom.

Participants were recruited through the use of the researcher's professional connections with a school district. The researcher sent an emailed letter of introduction to the principals of the 19 secondary schools and requested that they send a link to the questionnaire to the teachers on their campus. A subsequent email was sent to the principals that agreed to send the link to the teachers on their campus. Another source of data was from teachers who took part in the district's blended learning cohorts, which focused on the use of the Schoology platform.

Two-tier sampling was used to select participants for the interviews. The specific case that was studied was teachers' descriptions of blended learning and professional development, rewhich focuses on blended learning in this particular district. The case was bound by the age of

the teacher. Mirriam and Tisdale (2016) explained that the first set of data creates a pool for selecting participants to interview, which is the second tier. By utilizing the online questionnaire to choose the participants to interview it allowed for more in-depth and more meaningful interviews.

From the participants who took part in the online questionnaire, 10 were selected to take part in the interview process. Marshall et al. (2013) explained that there are varying beliefs among scholars as to the exact number of participants that should be interviewed for the research to be reliable. The goal is to reach a theoretical saturation, to the point where the data being collected becomes redundant (Marshall et al., 2013) If a single case is being studied, as is the case for this blended learning study, 10 interviews are an acceptable number (Marshall et al., 2013).

The total sample size for the study was 77 questionnaire responses and 10 interviews. Teachers were given the opportunity to complete a survey using Qualtrics®. The purpose of the questionnaire was to garner demographic information as well as to gather data to answer the research questions and create an assembly of participants for the researcher to interview. The researcher reviewed participants' answers, looking for strong attitudes toward technology and blended learning; however, utilized the participants who volunteered to be interviewed.

The researcher used purposeful sampling to select participants from the questionnaire to be interviewed. Purposeful sampling was done so that the participants are homogeneous, as far as their experiences (Palinkas et al., 2015). The interviews were semistructured to allow for a more conversational tone but maintain the focus of the interview (Denzin & Lincoln, 2018). In a semistructured interview, the researcher's goal is to purposely elicit the description of life experiences from the participant (Denzin & Lincoln, 2018).

## Instrumentation

As a qualitative descriptive case study, the researcher used three sources of data in a twostep collection process. The first source of data was collected in the form of an online questionnaire, which included a section to gather demographic information and a section of open-ended questions regarding the usage and perception of technology and blended learning in the classroom. The questions, as well as the consent form, are in Appendix D. The second stage of research was a semistructured interview, which included questions that were developed by the researcher to help explain the teachers' descriptions and perception regarding the use of technology and blended learning in their classrooms. Questions for the semistructured interview protocol are found in Appendix E. Interviews enabled the researcher to garner information in a conversational setting, where participants were more comfortable to talk about their descriptions and perceptions (Yin, 2012).

The third set of data was collected from the researchers' field notes. Merriam and Tisdell (2016) explained that field notes are a valuable piece of qualitative data, as it allows for the visual expressions that are part of the participant's overall feelings and perceptions. As the researcher interviewed participants, the researcher noted facial expressions, the tone of voice used by the participant and hesitations in descriptions by the participants.

**Demographic form.** A short set of demographic questions were included at the beginning of the questionnaire. The demographics areas in which data were collected are gender, ethnicity, age, subject taught, number of years the participant has been teaching, and the number of in-services that the participant has taken that relate to technology and blended learning. Denzin and Lincoln (2018) explained that demographic data is considered to be solid factual data, and helps to give more concrete information to interviews.

**Open-ended questionnaire.** The second part of the online questionnaire was composed of several open-ended questions, which all participants had the opportunity to answer. The data gathered from the open-ended questions helped the researcher to select participants who volunteered to take part in an interview, which created a two-tier sampling through stratification of the data from the questionnaires. The following questions were asked on the online questionnaire:

- 1. Do you use blended learning in your classroom?
- 2. How old were you the first time you used a computer, and in what capacity did you use it?
- 3. What forms of technology do you utilize on a daily basis in your personal life?
- 4. What forms of technology do students in your class utilize on a daily basis?
- 5. Do you believe that technology is necessary for a student to be successful? Why?
- 6. How often do you believe technology should be used within the classroom?
- 7. What form of blended learning to you utilize most frequently?
- Describe the results of your blended learning implementation of a blended learning program in your classroom.
- 9. If you would be like to participate in a short interview, either in person or via web conferencing using Talky io, please provide your name, phone number, and email address. If you do not want to participate in an interview, please leave this question blank.

The questions in the open-ended questionnaire were designed to help the researchers understand the teachers' descriptions and perception of technology, and also to guide the semistructured interview process. The data collected from the questionaires, allowed the reseracher to individualize each of the interviews, and garner more detailed descriptions from the participants. The last question of the questionnaire was used to identify participants who were willing to be interviewed either in person or via web conferencing by the researcher.

Semistructured interview protocol. The second data source was collected through interviews with a smaller number of participants. These participants were selected from those who identified themselves as willing to participate in the questionnaire. Both research questions guided the questions that were asked of participants in the interview sessions. Each of the initial research questions had five questions that were designed to extend the conversation and help the researcher better understand the participant's descriptions and perception of technology and blended learning. The questions for the semistructured interviews are located in Appendix E.

## **Data Collection**

Data was collected through 10 in-depth interviews with teachers over the age of 36, who have created a blended learning component in their classroom. Some teachers described a more complex and robust blended learning program, while others were in the early stages of adoption. Through the interview process, the researcher garnered a better understanding of how the teacher described and perceived the use of technology as related to their content area. Interviews were vital to understanding a teachers'description of technology because this is something that cannot be observed (Merriam, 1998). Interviews were semistructured, using open-ended questions and allowing participants to answer questions in their own words (see Appendix E; Merriam, 1998). By interviewing participants, the researcher got a profound understanding of why teachers have the perceptions they do regarding technology and how they described technology and professional development related to technology (Stake, 2010).

Gathering data was paramount, and each piece of data added to the researcher's understanding of the phenomena. However, it was vital for the research to look for different forms of evidence through different lenses (Merriam & Tisdell, 2016). Each teacher was interviewed individually, so that they could tell their story and use their own words to describe blended learning and professional development as it related to blended learning. Not only did data from different sources help to build a thick and rich description, but it also helped to verify that the data collected is accurate (Merriam & Tisdell, 2016).

#### **Identification of Attributes**

Many teachers used blended learning programs as a way to improve student learning and grades. It is critical to note that the inclusion of technology alone may not automatically mean that students will learn classroom content any better than they would without technology (Tang & Chaw, 2016). Instead, it is the pedagogical approach that makes a difference in how well a student does in a class (Tang & Chaw, 2016). Therefore, it is the teachers' perception and discription of the effectiveness of blended learning that has a more significant effect on the program's success (Picciano, 2014).

While there was a significant amount of research on the implementation of blended learning at the college level, more research needs to be conducted at the high school level (Helms, 2014; Tang & Chaw, 2016). Interviews were performed with secondary school educators to understand the rationale for adopting or not adopting blended learning, as recommended by Porter and Graham (2016). The researcher used interviews in this study as a way to research how educators described professional development and how it has impacted their adoption of blended learning programs in their classrooms. Carver (2016) explained that there was a need for qualitative research, which investigated how teachers described professional

development as it related to blended learning. Huang (2015) and Kormos (2018) explained that there was also a need for more research which focused on the descriptions, beliefs, perceptions and experiances of teachers who used rigorus blended learning programs in their classrooms.

# **Data Analysis Procedures**

Analysis began at the moment the research started to gather data as prescribed by Merriam (1998). From the first piece of data, interview, document, or observation, the researcher had insight and refined the research questions (Merriam, 2018). As the researcher collected the plethora of data, it becames important to organize it in a way that helped the researcher and allowed for themes, patterns, and similarities, to be noted. The researcher created categories in which to disseminate bits of data (Merriam, 2018). All data collected was organized systematically, so that it could be easily accessed and reviewed (Yin, 2014). The data were analyzed using thematic patterns, triangulation, and descriptive statistics.

**Questionnaires.** In order to analyze the data collected from the online questionnaire, the researcher utilized a thematic analysis to identify and analyze patterns within the participant's response (Braun & Clark, 2006). By identifying themes within the participants' responses, it allowed the researcher to be able to conduct interviews which were more specific to each participant and garnered more in-depth details. The thematic analysis helped the researcher to see patterned responses from the participants and connected meaning to the data point (Braun & Clark, 2006).

**Semistructured interview protocol.** Interviews were analyzed through thematic analysis. Thematic analysis is the identification of specific themes or topics that are integrated into each of the interviews (Merriam & Tisdell, 2016). As each interview was transcribed in order to help the researcher to identify patterns and themes that were reoccurring within each

interview and subsequently, all interviews (Siediman, 2013). After transcription, the researcher could then create a profile, which helped to then identify patterns and themes within each interview (Seidman, 2013).

**Field notes.** Field notes offered another level of data, which provided thick and rich detail beyond the words. Field notes allowed for a deeper level of descriptions because they relied on the researcher's senses (Mirriam & Tisdell, 2016). Therefore, the researcher listened for the tone of voice when participants say certain words, as well as the expressions on their faces as the described blended learning in their classroom and professional developments that they had attended. Lastly, the research watched for participants actions as they answer the interview questions; did they pause, fidget, or act in a certain way. These descriptions helped the researcher to understand the perception of the teachers as they describe blended learning and professional development. These observations were analyzed using descriptive analysis.

**Triangulation.** The data collected from questionnaires, interviews, and field notes were triangulated. Triangulation is a conglomeration of all three data sources, used to create confidence in the results of each independent analysis (Yin, 2012). Patton (2015) explained that the triangulation of data, as well as theory, are ways of strengthening the credibility and confidence of the results. After coding the results of the questionnaire, the interviews, and the field notes, the researcher disseminated the data to look for common occurrences in the participant's words and actions, thus triangulating the results (Patton, 2015). Kern (2018) explained that triangulation would reveal both areas where the data is convergent and divergent, which strengthens the validity of the data that was gathered.

# **Limitation of Research Design**

There were several limitations to this study that the researcher previously identified. Extensive research had been conducted regarding blended learning at both the college and elementary school levels, but not middle and high school (Carver, 2016). Therefore, this research was limited to the secondary level in an urban school district in Texas. The teachers who were participants were limited to a small group, where age was a binding factor. Therefore, their responses were most likely different than teachers who were younger and are just now joining the teaching profession. Also, the teachers included in this study were split between those who had taken specific professional development related to blended learning and those who had not.

Another limit to this study is that the researcher could have inserted personal bias by word choice or tone. The interviews were conducted with a semistructured interview protocol. Each of the participants was asked the same set of questions, and based on those responses, the researcher asked participants to explain more or expand their responses. By utilizing the participants' own words to look for themes, any personal biases interjected by the researcher were mitigated.

## Validation

Interviews enabled the researcher to garner information in a conversational setting, where participants are more comfortable to talk about their perceptions of technology and describe the use of technology in their classroom as well as their use of blended learning (Yin, 2012). The comfort of being able to speak freely allowed for the participants to give honest answers to questions regarding district infrastructure and professional development. Merriam and Tisdell (2016) explained that validity in a case study is internal, and assumes that the results are in

perpetual change, as a society and people change. Triangulation also creates validity (Braun & Clarke, 2006). All results are triangulated to assure the validity of the findings.

**Credibility.** Credibility is a synonym for "transferability, dependability, and confirmability" (Merriam & Tisdale, 2016, p. 239). Reliability was defined as the ability to duplicate the results of the study (Merriam & Tisdell, 2016). However, this qualitative research focused on the way people saw the world around them and their experiences. Therefore, there was not a set of rules that govern how people feel or view the world; it is an individual and personal view (Merriam & Tisdell, 2016). This study had a small sample size and focused on a specific set of educators; there is no definite set of experiences that lead to a set of beliefs. Therefore, it was hard to define credibility in this case study.

**Dependability.** According to Merriam and Tisdale (2016), dependability is another way of stating that there is consistency in the findings of the study. As this study was conducted in an urban school district, which has integrated blended learning at the high school level, it is expected that the data would be similar in other districts with comparable demographics. Teachers who were interviewed responded with consistent answers, which were similar in phrasing and

#### **Expected Findings**

The researcher expects that the sample population, of teachers born outside the digital age, will utilize technology and blended learning within their classrooms. Merriam and Tisdale (2016) explained that there is a necessity for the researcher to explain his or her biases, dispositions, and assumptions regarding the topic of the research being conducted. Therefore, the researcher asserts that the expected outcome of the research is that secondary teachers, who were born before the digital age will embrace technology and utilize it within their classrooms. In

addition, this same group of teachers will be enthusiastic about professional development that focuses on technology.

# **Ethical Issues**

There were a few ethical issues of concern with this study. Prior to conducting research, the researcher submitted an in-depth request to the Concordia University–Portland Institutional Review Board (IRB). Upon review of the intended study, the IRB approved the research questions, and the format of the study. In addition to the approval of the IRB, the school district also allowed the researcher to send the survey to several groups of teachers, such as the Schoology Cohorts, which were three groups of teachers who had or were in the process of completing district training on the Schoology platform. There were also three middle schools and one high school participated in the survey in addition to the Schoology cohorts.

The researcher prevented bias by recording all interviews and asked all participants the same set of questions on the questionnaire and used the same semistructured interview protocol. For each interview the researcher used pseudonyms for all participants, thus by numbering the interview participants as Participant 1, Participant 2, Participant 3, etc. The results of the questionnaire and the individual interviews were kept confidential. Participation was not mandatory. The researcher used specific quotes from the participants, to substantiate the conclusions. Specific examples were used as evidence to support the suppositions that the researcher made as a result of the interviews. After the research was completed, teachers were offered a debriefing over the results, so that there are no lingering questions or concerns.

The American Psychological Association (APA) (2017) lists four areas that could create conflicts of interest (COI): financial benefits, substantial benefit to self, cross organizational roles conflicts, and any other personal or professional benefit to the researcher. There were no

financial benefits to the researcher or research participants. The researcher was not in the position to make decisions for the district, schools, or personal that participated. Furthermore, the researcher did not have a role that would directly or indirectly influence any decisions with the APA.

The results of the data gathered were given at a district-level conference during the summer 2019. If at any point, the teacher did not want to continue as a participant, they could discontinue their participation in the study. Data in the form of audio and video files were being kept in a password-protected file on a flash drive, then stored in a locked filing cabinet. Physical notes were kept in a locked filing cabinet as well. After three years, all data will be destroyed.

### **Chapter 3 Summary**

This chapter outlined how the researcher conducted a descriptive case study regarding teachers' descriptions, perceptions, and attitudes toward blended learning as well as their descriptions of professional development over technology, and specifically regarding blended learning. Age and use of technology were the binding factors for this research. The research focused on the attitudes and perceptions of teachers who were born outside of the digital era, and how they implemented blended learning in their classrooms, as well as how they described professional developments related to blended learning and technology. Participants were given a questionnaire, and from that group of participants, 10 were selected to be interviewed. As the researcher interviewed the participants, field notes were taken, which provided a third set of data points. Through meaningful investigation, the researcher was able to gather data which gave a thick and rich description of how the teachers' description of technology and their perceptions affect the implementation of blended learning in their classrooms. Research also explained how teachers' description of professional development had impacted their use of blended learning.

#### **Chapter 4: Data Analysis and Results**

# Introduction

Before the conclusion of this study, it was unknown how teachers who were born outside of the digital age described the implementation of blended learning in their classrooms, as well as how they described professional development concerning technology as it related to blended learning. This study utilized an online questionnaire through Qualtrics®, individual interviews, and field notes to gather data on teachers' descriptions. The online questionnaire collected data necessary to bind the case, such as age and use of blended learning. Questions also focused on the way teachers described their relationship to technology both in and out of the classroom. As participants described their first uses of technology, the researcher was able to understand and identify any preconceived biases.

The target population of this study was secondary teachers who were born before the digital age, meaning they were born before 1983, and were at least 36 years old. There were 11 participants whose age ranged from 26–34. While these participants were not by definition, born outside the digital age, they were born on the cusp of the digital age, and therefore, their responses were included in the data gathered from the questionnaire, but none were interviewed. None of the participants that were selected for interviews were under the age of 40, and all were therefore born outside of the digital age.

The general population of this study was comprised of teachers from an urban school district in Texas. All teachers taught at the secondary level, therefore middle or high school. Some of the teachers had taken part in the district's blended learning cohort, while others had not been a part of the group but still were utilizing some form of blended learning in their classrooms. The group of teachers who had taken part in the district's professional development

through the Schoology cohort, provided detailed descriptions of professional development as it related to blended learning.

A gap in the literature noted that more research needed to be conducted to describe K–12 uses of blended learning in the classroom (Helms, 2014). Porter and Gram (2015) noted that there is a need for research to understand the reasons for adopting blended learning or what hinders the adoption of blended learning. Huang (2015) explicitly stated the need for qualitative research over blended learning. The research focused on the answers to two questions which pertained to blended learning:

R1: How do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom?

R2: How do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom?

The study was a qualitative case study, which allowed the researcher to garner a deeper understanding of teachers' descriptions of blended learning as well as how professional development in regards to technology and blended learning influenced how teachers implemented blended learning in their classrooms, or if they did implement blended learning in their classrooms. This chapter delivers an overview of the descriptive data collected from the research, the data analysis procedures, and the results of the data analysis. The section will conclude with a summary of the findings from the data collected in this case study.

### **Description of the Sample**

An online questionnaire was sent out to teachers at three middle schools, one high school, and the blended learning cohort, which the school district-sponsored for teachers to learn about Schoology. The Schoology group was composed of all high school teachers and was a

professional development opportunity that focused on the integration of blended learning using the Schoology Learning Management system or LMS by the district. There were 77 responses to the questionnaire, with 66 being completed and utilized for data. After completion of the questionnaire, 16 participants indicated that they would be willing to be interviewed; however, of those 16 participants, 10 were interviewed. These 10 interviews were garnered a saturation of data. Figure 1 provides a visual representation of the stratification of participants.



Figure 1. Recruitment and sampling process: Funneling.

Through the online questionnaire, the researcher discovered that instead of teachers being introduced to computers and technology in college as prior research had suggested, many of the
teachers born before the digital age had experimented with technology on a more personal level. One participant explained that he took computers apart and would put them back together to see how the computer worked. Teachers described their first use of computers for games or by using a more hands-on approach of taking the computer apart and seeing how it worked. Many of the teachers who participated in the questionnaire played games, such as Oregon Trail as younger students in school. On the other end of the spectrum, there were a few participants who were in their 30's before being introduced to computers and technology. One participant was in their 30's and learned how to use a computer through a district professional development.

**Demographics.** The demographics of the teachers who participated in the questionnaire portion of the researcher were varied. Of the participants, 83.6% were female and 16.4% were male. The ages of the participants extended from 26 to over 60 years of age. Figure 2 illustrates the breakdown of the age of those who participated in the online questionnaire. Age was a binding factor in this research; therefore, it was necessary to have participants who were born before the digital age, which was defined as 1983 by Prensky (2011). The group of teachers who participated whose age ranged from 26–34 were born on the cusp of the digital age and allowed the researcher to compare their responses to those who were born before 1983. There was not a substantial difference in the responses of those who were born before the digital age and those born on the cusp of the digital age.



Figure 2. Age of participants.

Of the 66 respondents to the questionnaire, 10 participated in an interview with the researcher. Of those 10 participants, six taught at the high school level and four taught at the middle school level. Of the high school teachers, three had participated in the district offered a professional development program, which focused on the implementation of blended learning using the Schoology LMS. Teachers who participated in the interviews were equally divided between a traditional campus and a special campus that specialize in working with students with behavior problems. Figure 3 shows a representation of the grade level of those who responded to the questionnaire.



### Figure 3. The grade level participants taught.

Interviews with the participants gave the researcher a plethora of information about how each described both the implementation of blended learning as well as professional developments they had taken regarding technology and blended learning. Teachers' understanding and usage of technology and blended learning could be placed along a spectrum from Luddite to the digital native. At one end of the spectrum, Luddite teachers were just now learning to use PowerPoint, on the other end of that spectrum, the teachers ran their entire classroom on the digital platform. There were more teachers (8 of 10), who utilized technology with their students every day. Those who were not able to use technology every day expressed a desire for more training and also explained that they did not have access to computers, tablets, or working internet daily.

One teacher who was interviewed would be considered on the Luddite end of the spectrum. She explained that she was just learning to utilize programs such as PowerPoint and had not had specific professional development on technology. She described a lack of technology on her campus and stated that "technology is scary because I don't know what I am doing." She went on to explain that she believed technology was an important part of a well-rounded education for students. On the other end of the spectrum was a teacher who called herself and "early adopter." She started the interview off by stating "technology is my BFF." BFF is short for best friend forever. This teacher described her classroom as 100% technology driven. All assignments are assigned and graded through the Schoology LMS. She even explained that she built relationships through playing games with students online outside of the class time. Another teacher that would be considered an early adopter explained that she loved technology and looked for opportunities to learn new applications not only for her classes, but in her personal life as well.

Three teachers, who were all over the age of 40 explained that their classes were digitalized, and students received all new information via Schoology, and a majority of assignments were submitted and graded through the digital classroom. Teachers who seamlessly implemented a blended learning environment used technology as a tool not only to teach but to communicate and build relationships with their students. All teachers described technology as a "common language" between teachers and students, that helps build positive working relationships.

One of the teachers explained that upon returning from active deployment in the late 1990s, she began to implement all the technology she could. When asked to describe her relationship with technology, the teacher responded: "technology is my BFF." The teacher explained that her first year back in the classroom, she was a traveling teacher and began to see technology as a time saver. The teacher integrated PowerPoint as a way to share information with students without rewriting it on the board in each classroom. After the second deployment, when the teacher returned, the district had adopted Schoology, and the teacher embraced the opportunity to be in the first cohort of teachers who took the professional development on

blended learning. After taking the professional development over Schoology, the teacher then implemented a fully functional blended learning environment. All notes, activities, assignments, and exams are taken and submitted through Schoology. In addition, this teacher uses a digital platform to build relationships with students through communication and gaming.

Another teacher who was interviewed, who was over the age of 50 and taught a foreign language, explained that she loved technology and she was one of the first teachers to sign up for the professional development opportunity offered by the district to learn how to implement Schoology. However, this teacher took blended learning one step farther and gamified her classroom. When students enter the room, Classcraft is projected on the board with a quest for students to complete as a warmup. As students complete the warmup, they team up with their groups and work through their assignments utilizing a class set of iPads. The teacher explained that students play games and watch videos in class to learn German. The teacher believed that students learned faster using games and videos because the students are learning the language through emersion and have become more motivated.

All 10 teachers described the positive effects of technology usage in the classroom. They explained that when students used technology, they became more engaged and excited about learning. One teacher stated that the use of technology helped provide real world examples. Another teacher pointed out that by using technology in class, students had the most up-to-date information at the tips of their fingers. In addition, with the use of technology, students were more in control of their own learning. Students were active learners instead of passive learners. The teachers described classes where the teacher had a positive relationship with the students and worked hard to build it. However, it was also brought up by seven of the teachers that there is a downside to the use of technology.

One teacher, who worked at the special campus at the high school level explained that the blended learning program on that campus was not successful. The program utilized on that campus is Edgenuity. That program is premade with a set of vocabulary, online content, lecture, and quiz for each section, followed by a unit exam. The participant described several reasons that she believed the program was not successful, with the first being that the teacher was not building to content to support the students specifically, but rather the program was a one size fits all with no teacher interaction. She described students as unengaged with the program for various reasons.

One of the reasons that the teacher kept returning to in her interview was that the students did not have a relationship with the teacher. She described the classrooms as technology-driven, with students logging onto the computers for all subjects and not having a teacher to give individual help or attention to struggling students. She said "computer usage depends on the population that is being served. On my campus we have students who are behavior problems, and do not engage in educational activities when they are on the computer. These students need direct teacher involvement, because education is not their priority." However, the same teacher explained the when teachers created blended learning courses and tailor the courses to the students; then she believed the students were more successful. As an ELL teacher on the special campus, she explained that she would pull students out of class and have them work on a computer with a specific program and goal to help them improve their language skills. Furthermore, the use of technology and blended learning by teacher design allowed students to receive more individualized help and allowed the teacher to differentiate the class for the different learning levels.

## **Research Methodology and Analysis**

In Chapter 3, the researcher explained the way in which data would be collected then subsequently analyzed. The sources of the data gathered began with a questionnaire that collected demographic data and ended with a set of open-ended questions. The last question in the questionnaire asked if the participant would be willing to participate in an interview. The researcher then interviewed 10 participants and took copious field notes during the interview process. The researcher then transcribed the interviews, as noted below. After transcription, the researcher coded the transcripts and noted themes that reoccurred both open-ended question responses and interview responses. Subsequently to the data analysis, the researcher gave a summary of the case study, which is briefly described within this chapter and expanded on in Chapter 5.

**Preparation of the data.** The researcher utilized Qualtrics® to gather data in the form of a questionnaire. After the questionnaires had been completed, the researcher assembled the data from Qualtrics® to a spreadsheet in order to be able to review the responses of the participants. The researcher used the responses from the last question on the questionnaire to schedule interviews with participants who volunteered to be interviewed. In order for the participant to be selected for an interview, they had to have the following information:

- 1. The participant had to be over the age of 40, therefore being born outside of the digital age.
- 2. The participant had to provide a method of contact, being either email or phone number.

There were 16 participants that self-selected and responded with contact information. The researcher contacted each participant via email to schedule a date and time for the interview. Of

the 16 participants that were contacted, 10 scheduled interview times. Upon completion of each interview, the interviewer transcribed the interviews by hand. Each of the interviews was digitally recorded with the participants' permission.

Thematic analysis. Data gathered from the open-ended questions on the questionnaire, interviews, and field notes were synthesized in several steps. The researcher first reviewed the responses to the open-ended questions by exporting the responses from Qualtrics® to a Google Spreadsheet. Thematic analysis, being comparative by nature created a systematic way of analyzing data points (Merriam & Tisdell, 2016). After listening to and transcribing the interviews, the researcher matched responses with the corresponding field notes and reviewed the videos again. After becoming well acquainted with the responses, the researcher began to create codes for the data from the transcripts and questionnaire responses.

Merriam and Tisdell (2016) explained that coding is a system for cataloging reoccurring themes through content analysis. The researcher developed codes based on the two research questions. The researcher used each question to look for reoccurring words that the participants used in their questionnaire responses and the interviews. Research Question 1 asked: How do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom; and Research Question 2 asked: How do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom? After completing interviews, and transcribing them, the researcher identified codes connected to the responses, including the reference to relationships, engagement, achievement, real-world experiences, differentiation, common language, and community, which related to Research Question 1. A need for nontraditional professional development, content driven professional development which related to technology and time to try out new programs or hardware with the

guidance of the presenter, which related to Research Question 2. Each time one of these terms was mentioned, the researcher color-coded it, and noted similarities in the questionnaires as well.

**Triangulation.** Triangulation is a process that allows the researcher to understand better the data from the study. Patton (2015) explained that the term triangulation came from land surveying. When a single point is located on a plane, it is difficult to know the exact location, but if that point can be compared with two others, then the location or intersection becomes more evident (Patton, 2015). Patton (2015) explained that there are four forms of triangulation; this study uses triangulation of qualitative sources and theory/perspective triangulation. The triangulation of the data checked for consistency between data sources within the same method (Patton, 2015). The second kind of triangulation used was using multiple theories/perspectives to understand the data (Patton, 2015).

The triangulation of data between interviews and the questionnaire proved that there was consistency in the responses from the participants. Furthermore, the tone of voice and responses of the teachers as they were interviewed matched what they had said. For example, one of the teachers said that "Technology is my BFF." That statement was made twice during the interview. However, as this teacher talked about the use of blended learning in the classroom, it was obvious to the researcher that there was excitement in the participant's voice. Another example was that when the researcher asked a teacher who was new to blended learning about her experiences with technology, the participant became nervous and the tone of voice changed, and the participant broke eye contact with the researcher and began to fidget with her hair.

**Case study summary.** The final step for analyzing the data was to reconstruct the data points from the questionnaires, interviews, and field notes into a descriptive summary, which created a story about how data was collected, analyzed, and what the data meant. In this case, the

researcher found that while there are various levels of implantation of technology and blended learning, most educators have a favorable view of technology and want to incorporate more technology usage in their classrooms. The researcher provided a detailed explanation of how teachers described blended learning and professional development opportunities that focused on technology and blended learning.

# **Summary of the Findings**

It was evident by the responses in the questionnaire that a majority of the 66 respondents believed that the use of technology was a critical part of education. However, a few respondents stated that while technology was a part of their everyday life, it was not a necessity for the classroom. Those who believed that technology was not necessary for educational success had 10 or fewer years of experience and were both male and female. Most of them saw technology as a distraction rather than a learning tool.

Most teachers who responded to the questionnaire view technology as a tool to help students not only in the present but also to prepare them for the future. Teachers described digital literacy among students to be an essential factor in helping them achieve success beyond the classroom. One of the teachers interviewed explained that students need balance, while she utilizes technology to engage the students, she also uses paper-based assessments too. That teacher described that students learn more at a deeper level through the gamification of the content and can show it on a paper-based assessment.

**Research Question 1.** The first research question was: How do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom? Teachers' descriptions of blended learning were positive. Every teacher interviewed explained that there needed to be a balance between technology and traditional education, and it is up to the

teacher to be able to decide when and how each should be utilized to the benefit of the student. One of the teachers interviewed stated "they [students] pick it [technology] up so quickly and it helps them understand other concepts." Teachers described an increase in engagement and a deeper understanding of the content. Teachers explained that technology is a part of the students' daily repertoire, and therefore can act as a common language to help teachers connect with students in a way that they would not be able to without the use of technology.

**Research Question 2.** The second research question was: How do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom? Many of the teachers who were interviewed explained that they sought online professional development outside of the district, as it allowed them to learn on-demand, and help them to implement programs that would be helpful for their students. Also, teachers described the use of online education on a personal level, as many of them had used online programs to earn advanced degrees.

### **Presentation of Data and Results**

This qualitative descriptive case study set out to answer how teachers describe blended learning and professional development related to blended learning. Teachers were asked a series of questions that were used to establish demographics, followed by questions designed to garner the teachers' description of technology and blended learning usage in their classroom. Teachers who participated in the interviews described a balance of traditional and technology-based learning, helping students relate to the subject matter and learn the content at a deeper level.

Many of the teachers did not believe that they had received adequate training to implement a robust blended learning program. One teacher explained that when it came to technology, it was an essential part of the classroom, but that not all campuses had the same level

of technological capabilities. Furthermore, all teachers described a need for technology-based professional development

Teachers were enthusiastic about the incorporation of technology in their classrooms. Many described blended learning as a tool that helped them differentiate for different levels of learners, as well as connect with students in a way that was not possible without the use of technology. However, the teachers described technology, which was used in a specific way, which blended with traditional education. Through technology, teachers believed that they were able to shape strong relationships with the students. Two teachers described gaming with students. One described using Pokémon Go, to help student learn German, and another one used an online word game to help student improve their vocabulary. One teacher explained the importance of gamification by stating "it makes students want to learn the language so that they can understand what is being said in the game." Through gamification two teachers were able to connect not only content by personally with students, thus building positive working relationships and opening a direct line of communication.

Teachers had various descriptions about technology based professional development as it related to blended learning. Two of the 10 teachers interviewed had limited to no professional development with technology or blended learning. Teachers who had a more advanced implementation of blended learning described utilizing online courses that were beyond what the district offered to be able to find new and exciting ways to engage students with technology.

**Summary of themes.** Several themes were identified in this descriptive case study. Teachers overwhelmingly described the use of blended learning in a positive manner. They identified technology as a tool in which they could engage their students and improve learning outcomes. The themes that were identified were developed from the coding of the

questionnaires, and interviews. The themes identified for Research Question 1 were: increased engagement, increased sense of community, communication, technology as a common language, on-demand learning, differentiation, relationships, and balance of traditional and technologybased learning. The themes identified for Research Question 2 were: a desire for nontraditional professional development, content specific professional development with time to try new programs or hardware, and enough computers or tablets for students to use them on demand.

*Increased engagement.* Each of the teachers interviewed explained that technology was a way to increase engagement within the classroom. One teacher stated that having the ability to utilize different programs and make foreign language hands-on helped students not only want to be involved in the content, but to also work outside of the classroom with the content. For example, one of the teachers interviewed explained that students were more likely to learn German better, if they used it to complete a task, or do something that they wanted. This teacher used the example of gaming, and explained that students wanted to win the game, and to be able to do so they had to be engaged with the content.

Another teacher explained that the use of technology helped students who would not normally be able to engage in conversation such as group discussions be able to join through the use of online discussion boards. This teacher explained that he English Language Learners (ELL) were able to think about their responses and read others' responses to help formulate their own response. This teacher expressed that online discussion boards added time to the class period, which gave students extra time to think about how they would answer questions, instead of sitting silently because they were not able to have time to think about their answers.

*Increased sense of community*. An increase in community was also a key component of online learning. One teacher explained that students who would not have been likely to

communicate outside of the class would often talk through the discussion boards or other online activities. In addition, this teacher explained that students would enter the class having conversations about something that they posted, or another student had posted on the class page. This teacher believed that the use of technology helped to break down barriers to student communication and helped to make students see each other as equals in the learning community.

Another teacher described how students in class would work together to solve problems, thus creating a sense of community within the class. This teacher described a similar scene to that of Gee (2016), where there are multiple students gathered around a computer working together to solve a common problem. The students are focused on solving the problem before them and are working together diligently while engaging the content. Teachers believed that this is a way of helping create one community within the classroom.

*Communication/technology as a common language*. Technology was also described as a way to communicate between not only teacher and student, but student to student as well. One teacher described the use of technology to complete vocabulary, through the use of short video clips called vines. This teacher explained that she could tell her students to go create a vine, and they understood that it needed to be a short video, roughly 40 seconds in length and gave a description or definition of the topic. Therefore, there was a common language that everyone understood, and it made it easier for students to be able to complete the required assignments.

Another teacher explained that when she had a substitute teacher, the students would email her to tell her what was going on in the class. She believed that students were more likely to communicate with her and each other when they could do it in a way that was not face to face. By removing that fear of a face to face confrontation, students were more inclined to communicate freely, which is also a part of building relationships.

*On-demand learning*. Draves (2013) explained that online learning allows students to pick up and learn when they can learn best. One of the teachers described the use of a premade online learning platform called Edgenuity. This teacher explained that it was the primary form of instruction used at her campus. She explained that students are sent to that campus for a set period of time, and the use of Edgenuity helps to keep students on track with the same concepts that were being taught on the students' home campus. Edgenuity allows students to be entered into the course at the area in which they left off at their campus and continue to learn at the same material they would be covering were they in their normal classes.

Another teacher explained that when working on a project it allowed students to work on the same assignment at different times. When students can choose the time and place that they learn best, they are able to learn the content better (Draves, 2013). When students can work asynchronously it allows them to complete assignments when they have time, and in their own time. Utilizing an online platform extends the time that student has beyond the brick and mortar classrooms.

*Differentiation.* Teachers have many different levels of students in their class. One teacher described a regular classroom that had students in many different ability levels. This teacher explained that by having an online component to her classroom she could focus on students who needed more help, while those who grasped the concept were able to work independently. It is paramount for teachers to be able to help students focus on areas where they need extra work and allow students who have mastered the concept to move on to other topics.

One teacher described being able to create different exams within the Schoology platform, and assign them to students individually so that no one knows that the student has a modified test. This same teacher described being able to give students individual guidance and

feedback in a way that was private and allowed her pinpoint where there was a gap in the understanding.

*Relationships*. Every teacher described the growth of relationships with technology was a part of the classroom. Several teachers described situations where they were not as solid on the use of technology and students were able to step in and help the teacher. Two teachers had narratives regarding students who were not engaged in class, had poor attitudes, and once they were able to teach the teacher how to do something, they became better students. Both teachers explained that they believed that that one interaction helped to build a positive working relationship with that student.

Another teacher described the communication between herself and students. She said that students would email her if she was not at school that day and update her how the class went and what the substitute was like that day. Two teachers explained that they played games with their students outside of class. They believed that by connecting with students through an online game, they were able to build strong positive relationships. One teacher described the use of a word game, which not only supported the content she taught, which was English. She explained that students would try to beat her high score on the word game, and that it was a positive way to connect with students. Another teacher explained that she played World of Warcraft with her students on a German server, which helped the students not only connect with her, but to also learn how to speak German.

*Balance.* Every teacher explained that not every assignment or assessment can be given online. There are times that traditional assignments and assessments must be utilized. While there is a value to using technology, it must be tempered with the improvements to content that it would create. One teacher explained that while technology was used at some point in every class,

there was need to have paper-based exams to prevent students from using Google Translate to cheat. Another teacher who taught math explained that while he used technology to show students how to solve problems, there is no substitute for old fashion practice by hand. That teacher went on to explain that he used technology when implementing the math lab, but that homework was expected to be done by hand.

*Nontraditional professional development*. All teachers expressed an interest in nontraditional professional development. Two teachers explained that they sought out of district professional development which focused on the use of technology and how to incorporate it into the classroom. Another teacher explained that she had created an entire folder on her computer that was titled "PD in your PJs." She had created short online professional development opportunities which teachers could take through the Schoology platform. She had taught several classes using a blended learning program, and believed that teachers were more engaged and learned more when they could take the course in their own time and in a place where they were most comfortable.

### **Chapter 4 Summary**

Secondary teachers were given an opportunity to participate in research regarding blended learning. The sample population was derived from both middle and high school campuses and the district's Schoology Cohort. The research was focused on teachers' descriptions of blended learning and professional development that focused on blended learning. Several of the teachers who participated were part of the Schoology Cohort, while others had never had professional development that focused on blended learning.

Data was gathered through an online questionnaire. The last question of the questionnaire asked for volunteers to participate in interviews with the researcher. The researcher took filed

notes that described the participants' tone of voice, facial expressions, and mannerisms as they described blended learning and professional development. After reviewing the questionnaires and transcribing the interviews, the researcher began to look at reoccurring themes in the questionnaires and interviews. The researcher's hand-coded the transcriptions and questionnaire result. The researcher then triangulated the results to strengthen the validity of the study.

The themes identified were increased engagement, increased sense of community, communication, technology as a common language, on-demand learning, differentiation, relationships, and balance of traditional and technology-based learning. Each of these themes was described by all 10 participants who were interviewed. The results of the study were supported by the theories that composed the theoretical framework that supported this study.

#### **Chapter 5: Discussion and Conclusion**

# Introduction

This qualitative descriptive case study examined how secondary teachers described blended learning and professional development that focused on technology regarding blended learning. Technology has increased exponentially in education and the expectation is that teachers utilize it to increase student achievement (Miller et al., 2019). The data collected in this study supports teachers' desire to utilize technology. In addition, the descriptions that teachers gave in regard to professional development that taught technology and professional development, the teachers wanted more professional development that would teach them about technology and how to implement it within the teachers' content area.

### **Summary of the Results**

The results of this qualitative descriptive case study explained how teachers described technology use in their classrooms, as it related to blended learning. Teachers described how they utilized blended learning, and other forms of technology, and why they believed that it made an impact on how they taught and how their students were able to learn. Teachers also described in detail what types of technological professional development they took and how it impacted their use of technology and blended learning in their classrooms. Through their interview's teachers described ways in which professional development that related to technology could be improved and what would be more helpful for them, as they implemented blended learning in their classrooms.

**Research Question 1.** How do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom? Teachers described the use of blended learning as a way to connect with students in a way that was not possible through traditional

learning. All teachers interviewed had a positive description of technology and blended learning programs. However, teachers also noted that there must be a balance of technology. Teachers described an increase in sense of community and student engagement when technology is used.

The themes that were identified through the descriptions that teachers gave in their interview helped the researcher to understand how they implanted blending learning in their classroom, and how they described technology as a whole. All the teachers had a positive view of technology, no matter what their level of implementation was, or how much they used it in their classrooms. The table below lists the themes that were identified through the interviews with teachers.

Table 1

Themes	Identified in each interview	%
Technology as a bridge to enhance student	10	100%
ability and learning		
Gamification	2	20%
Technology helps to build relationships.	10	100%
Technology connects content to the real	10	100%
world.		
Blended learning helps differentiate	4	40%
learning within a class.		
Technology helps to build a stronger	10	100%
community within a class.		

Themes Identified Through Interviews With Teachers for Research Question 1.

Research Question 1 asked: how do teachers describe the use of technology as it relates to the implementation of blended learning in their classroom? Teachers overwhelmingly described the implementation of blended learning in their classroom as positive for both the teacher and the students. Draves (2013) explained that students learned at a deeper level and had a better connection to each other through the use of blended learning. Teachers described students being able to extend their learning outside of the traditional school day with the use of blended learning, and the blended learning communities helped to build positive relationships between both teachers and students, and students and students as described by Tucker (2012) and Kieschnick (2017). Through the use of a qualitative case study it is now understood that teachers born outside of the digital era have a positive description of blended learning.

**Research Question 2.** How do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom? Teachers who were not a part of the blended learning cohort described professional development as it related to technology as lacking and believed that they did not have adequate training to implement fully blended programs and also stated that there was not enough hardware on campus to support their programs. The teachers who were members of the blended learning cohort did believe that the professional development provided by the district was a good start, and it helped them solidify use of Schoology in their classrooms. Some teachers described using a fully blended program and stated that they went outside the district to be able to find new ways of engaging students with technology.

One of the differences in descriptions of the implementation of blended learning between teachers who were part of the blended learning cohort and those who were not was the availability of technology for the teachers and students to use. Teachers who were part of the Schoology cohort explained that because of their participation in the professional development, they received a class set of iPads. Each class set contained 30 iPads, which the teacher was able to customize with the apps they believed would help their students learn the content that each teacher teaches. Furthermore, if the teacher was also a part of another group, such as an ELL teacher or AP (advanced placement), they also had class sets of laptops. Having these class sets,

meant that the teacher was not waiting to take their student to a computer lab, or have a lab brought to their room. In other words, the teacher has on-demand technology.

Teachers had an overwhelming desire to have more professional development, which focused on technology and specifically blended learning. Teachers described the need for content driven professional development which, would allow them time to attempt to implement what they learned, while being able to have the presenter available to answer questions that may arise. In addition, teachers described the use of blended learning for professional development as a way that they would like to learn. The table below lists the themes that were identified through the interviews with teachers regarding their experiences with professional development as it related to blended learning.

### Table 2

Themes	Identified per interview	%	
More nontraditional professional development	10	100%	
through the district			
Content specific technology driven professional	4	40%	
development			
Time to explore new programs or software with	6	60%	
the assistance of the presenter			
Hardware to implement what teachers learned	8	80%	
in professional development			

Themes Identified Through Interviews With Teachers for Research Question 2.

Research Question 2 asked: how do teachers describe professional learning opportunities which focus on the implementation of blended learning in their classroom? The response to questions that focused on professional development was varied. Teachers believed that nontraditional professional development would be beneficial to them, and one teacher had plans for creating online professional development through Schoology. As described by Maciá and García (2016) teachers believed that they would be able to learn more through professional

development that was not traditional. Two teachers explained that they went outside the district to find online professional development that focused on the implementation of new blended learning opportunities, which were offered via webinars or other online outlets. In addition, teachers noted that while they were expected to implement blended learning programs, they still did not have adequate hardware on several campuses to allow for seamless integration, which described as Carver (2016) explained is a first-order barrier. Teachers want to use technology in their classrooms, and are eager to have nontraditional professional development, but still encounter barriers despite the districts push to be a fully integrated Schoology District.

# **Discussion of the Results**

Technology will continue to grow and evolve, and it is paramount that students learn how to utilize it in a myriad of ways. Students must be able to communicate effectively in the digital world, and it is the teachers' responsibility to help them learn how to do that. There are implications that can be formed from the review of the data collected and how it related to the conceptual framework that supported the study.

Research Question 1 asked teachers to describe blended learning and technology as it related to blended learning. Teachers described technology as a necessity for students to live in a digital world. They saw technology as a tool to build relationships and make the content more interesting. Teachers also explained that while technology was paramount in providing a wellrounded education to students, the relationships that teachers build with the students are the most important. For example, one teacher explained that she challenged students to word game outside of class, which helps students to improve their vocabulary, but it also helps her connect with students.

Research Question 2 asked how teachers described professional learning opportunities which focused on the implementation of blended learning in their classroom. The responses for that question ranged from wanting more district opportunities to have professional development on their level to how learning opportunities could be improved. Two of the interview participants explained that they rarely participated in professional learning opportunities provided by the district, because they were early adopters and felt that they needed something more in-depth than what the district was able to provide. Both of those participants mentioned specifically that they did webinars with companies like Class Craft.

Theoretical implications. There were two theoretical frameworks that the researcher identified that created the foundation of this study. The first of the two theories was Connectivism, which was defined as a learning theory that explained how the Internet and technology have created learning networks, which allow for the sharing of information between people (Siemens & Downes, 2015). The second theory the researcher used to describe the relationships between students and teacher was Guided didactic conversation theory. Guided Didactic Conversation explained the distance between a student and the teacher is physical and that learning occurs through conversation like encounters that guide the students' learning (Lokey-Vega et al., 2018).

**Connectivism**. The data collected was in line with the theory of Connectivism. Duke, Harper, and Johnston (2013) explained that Connectivism is social learning that takes place through online networks. Connectivism uses the analogy of networking systems and describes each student as a node, that is competing for connections (Siemens, 2005). Therefore, the focus of Connectivism is the connections between students and their peers and the teacher. Schoology was designed to look like a social networking site, but instead of students just making social

connections, they are making educational connections as well. Teachers described students' interaction on the discussion boards as a way of the whole class interacting and learning from each other. Siemens (2017) explained that learners create new knowledge as they try to understand new experiences. Therefore, students link previous learning with new learning to help them create new understandings (Underwood, 2016).

In an interview with a participant, the teacher described the use of an online discussion board. She stated that she utilized online discussions in her inclusion classes, as well as the English Language Learner classes. She stated that the "online discussions give students time to think about their responses to the question asked and each other." She went on to explain that students became more engaged with each other through the discussion boards, because it gave students time to think about the question and formulate an answer. It also allowed students who did not understand the concept being discussed to look at other students' responses and create their own response once they understood the question. Connectivism explained this phenomenon, because it explains that students connect with each other to learn, and that learning is constantly changing.

Baker (2012) explained that there were eight key principles which created the foundation for Connectivism. He explained that learning and knowledge are gained through the diversity of opinion (Baker, 2012). In other words, students learn from a plethora or resources and each other. Teachers interviewed explained this point through the use of the discussion board. The second principle was that learning happens through a series of connections (Baker, 2012). Teachers described these connections through the use of games both in and outside of the classroom and allowing students to teach them tips and tricks with technology. The third principle was that learning can exist in non-human applications (Baker, 2012).

explained that sometimes students are able to learn more from an online activity, than from direct instructions. The fourth principle was that it is more important to have a capacity for learning, that what is known (Baker, 2012). Many teachers interviewed explained that they believed that they were training students for jobs that had not even been created yet, so they focused on how to learn, and used blended learning in addition to the content that they taught.

The fifth principle of Connectivism was that connections are paramount for continued learning (Baker, 2012). Teachers explained that building positive relationships with students helped motivate students to want to learn and go above and beyond what was required for an assignment. Teachers believed that the relationship piece was needed for creating lifelong learners. The sixth principle was a connection between concepts and real-life experiences (Baker, 2012). One of the teachers interviewed explained that by utilizing technology and blended learning, he was able to bring real world examples of his content into the classroom, which helped student to make connections. The seventh principle expressed the necessity for accurate and up-to-date information to be presented (Baker, 2012). One of the teachers from the special campuses explained that were it not for technology and blended learning the information presented to students through the textbook would not be adequate, as many of the textbooks are out of date.

Lastly, decision-making changed based on where the student is in the learning process, and what they know, the way the student thinks or processes information is likely to changed based on what they learn (Baker, 2012). This last point is critical for the implementation of a positive blended learning program. The more engaged a student becomes and the more the learn, it will affect their thinking. Many teachers describe this as the lightbulb moment; the moment when it all clicks and students "get it." Up until the moment that a student understands, they will

say it is too hard, or it does not make sense, then once they get it their whole attitude changes, as does the way they look at the topic. This can also happen through discussions on the discussion board if a student reads something that another student posts that is vastly different from their understand of the concept and they learn from it.

The research conducted was aligned with the theory of connectivism. Baker (2012) laid out 8 principles of connectivism. Each of Baker's (2012) points were illustrated through the descriptions of teachers who had utilized blended learning in their classrooms. Therefore, there was support for the use of connectivism as a conceptual framework for this research. Connectivism as a conceptual framework supports the use of blended learning by definition.

**Guided didactic conversation theory.** Guided didactic conversation theory focused on the exchange of information between teacher and student (Lokey-Vega et al., 2018). Every teacher interviewed explained that relationships and communication were a vital part of their blended learning programs. Two of the teachers who were interviewed explained that they played games outside of class that built communication with their students. For example, one teacher who played a word game with her students and would give extra credit to anyone who could beat her high score talked about how the students would message her through the text app on Schoology if she was out and had a substitute teacher. The teacher explained that communication was stronger with the use of a blended learning program than it was before. Not only is communication paramount in Guided didactic conversation theory, but so is the relationship that is built through the open and friendly conversation between teacher and student (Holmberg, 1987).

Every teacher interviewed focused on the need for positive relationships between teachers and students. All 10 teachers who were interviewed viewed technology as a tool to find

a common language between teachers and students. For example, one teacher described the use of vines, or short 7-second videos. Instead of having students complete vocabulary and key people worksheets in her class, students create vines for key words and people. She said "my students knew what vines were and they explained it to me. Now all I have to say is create a vine for whatever assignment and they know exactly what to do." This teacher had the relationship with her students to allow her students to show her something using technology that she did not know before and then incorporated it into the course. Vines became a common word used to explain certain assignments. Another teacher described how much it strengthened the relationship between her and a student when that student could teach her how to do something that related to technology.

Holmberg (1983) listed seven postulates which he believed needed to be present for a positive outcome to distance learning. Several of the postulates focused on the conversation between teacher and student. Blended learning also focuses on a conversation between teacher and student. As many teachers explained they thought that blended learning made it possible for them to create a more individualized education plan for their students as well as to differentiate for students who needed extra help and assistance. In addition, Holmberg (1983) described that there must be a positive relationship between the teacher and student for learning to happen. It does not matter if that conversation happens through an online medium or in person; all that matters is that the positive interaction occurs. As Draves (2013) pointed out blended learning allows for more interaction with individual students than in traditional education alone.

Guided didactic conversation theory had seven points which Holmberg (1983) believed were paramount in helping students learn. However, Holmberg's main focus was that the teacher and student had a positive working relationship, which would guide the student through the

content in a series of friendly conversations between professor and student. Holmberg believed that the relationship between the teacher and students shaped how the student learned.

Connectivism and Guided didactic conversation theory explained why teachers have found success in utilizing gamification in a blended learning environment. Students learn through interactions with each other (Siemens, 2005). When students are playing games together, they are able to learn from what strategies other students used that were successful, and what did not work. Baker (2012) explained that the connection between teacher and student must be maintained for continual learning to occur. In addition, when students play games with the teacher, they are building a positive and nonformal relationship, which strengthens the learning bond.

Both Connectivism and Guided didactic conversation theory, which were discussed above provided a strong framework for blended learning. However, when these frameworks are combined, they provided a complete picture of the positive impact that teachers described with the implementation of blended learning programs. The data gathered from both the questionnaires and interviews are supported by the underpinnings of the theoretical frameworks.

**Practical implications**. Balance is important, and the practical implications of this research suggest that it is critical in blended learning. When classes are run through an online medium only, which by definition that is not blended learning, though that scenario is what some teachers think of when they described blended learning. However, when teachers described blended learning programs that were successful and they believed worked for the students, they talked about building a relationship with the students first. Teachers talked about using technology as a tool to help them not only relate to the student by also find a common language. Teachers described technology as a tool to help students not only be able to learn content but to

also interact with each other. In the interviews, teachers described the use of a discussion board to allow students time to process the question and consider a response. One teacher described an extension of learning by the use of a discussion board as a way to improve the class community. The teacher explained that when students had assignments on the discussion board, they would frequently come into the classroom and continue the discussion or continue the class discussion on the board, and all students were included.

Of the teachers who were interviewed, three of them brought up that they had earned advanced degrees through online programs. They explained that they believed they were able to learn better through the online program, as it gave them the flexibility that helped then learn and be successful in their degree program. Those teachers explained that they believed that professional development could also be taught in the same way. One of the teachers had created and taught professional development in the form of a book study through Schoology. The teacher explained that by providing teachers flexible times and a way to learn, teachers be able to learn more than if the professional development had been conducted face to face only. The teacher described the interactions between teachers on the discussion board who would not normally have been able to connect as they taught at different levels and on different campuses. Also, teachers began to talk about other issues and bounced ideas off of each other.

**Future implications.** Teachers who were born outside the digital age have embraced technology. There was a correlation between age and technology usage. The older the teacher, the more interested in technology and blended learning the teacher was. The two oldest participants explained that their entire classroom ran through an online platform. However, every teacher explained that there had to be a positive relationship between the student and the teacher. The data shows that there must be a balance between technology usage and teacher interaction.

The blend of technology and traditional education is by definition blended learning, and as explained by Draves (2013) created a better learning environment where students learn content at a deeper and more meaningful level.

Teachers who were interviewed also described professional development opportunities. Many of them had been a part of the blended learning cohort and had learned to implement Schoology through the districts' professional developments. However, teachers who had technology-driven classrooms explained that they usually did not attend district professional developments that sought out online professional developments to improve their knowledge and understanding of how to engage their students through technology. One of the teachers brought up that most of the professional developments offered by the district or outside the district were taught through traditional methods. The teacher described a project that she was working on through the Schoology LMS, that was called "PD in Your PJs." The teacher explained that she believed that teachers could learn how to improve their craft through informal professional development. As noted by Maciá and García (2016), there is still room for growth for nontraditional professional development.

## Limitations

There were several limitations to this study that the researcher previously identified. Extensive research had been conducted regarding blended learning at both the college and elementary school levels, but not middle and high school (Carver, 2016). Therefore, this research was limited to the secondary level in an urban school district in Texas. The teachers who were participants were limited to a small group, where age was a binding factor. Therefore, their responses were most likely different than teachers who were younger and are just now joining the teaching profession. Also, the teachers included in this study were split between those who

had taken specific professional development related to blended learning and those who had not. Teachers who had been a part of the blended learning cohort had a deeper understanding of blended learning than those who had not been a part of that professional development opportunity.

Another limit to this study is that the researcher could have inserted personal bias by word choice or tone. The interviews were conducted with a semistructured interview protocol. Each of the participants was asked the same set of questions, and based on those responses, the researcher asked participants to explain more or expand their responses. By utilizing the participant's' own words to look for themes, any personal biases interjected by the researcher were mitigated.

There were areas of this study that could have been strengthened. One weakness of this study is that it did not include teachers who were born in the digital age. A comparison between the descriptions of teachers based on age might garner a better understanding of barriers that prevent the implementation of blended learning. Furthermore, it would strengthen the case for or against blended learning to garner student descriptions and perceptions of blended learning. Both the teachers' and the students' beliefs regarding blended learning should be considered.

Interviewing teachers and hearing their descriptions of blended learning and technology in their classrooms strengthened the researchers understanding of how teachers incorporated what they learned in blended learning or technology-driven professional developments in their classrooms. By using teachers' exact words and phrases to create themes, the researcher was able to create a group of themes which gave a valid representation of what the teachers had described. These themes were categorized and allowed the researcher to understand teachers' descriptions

were similar, though they used different words and expressions. Combining these into one set of themes allowed the researcher to have detailed description of teachers' responses.

### **Implications of the Results for Practice, Policy, and Theory**

As stated by Cuban and Jandric (2015), there has been an increase in the use of technology in the field of education. However, for teachers who were born outside the digital age, the inclusion of technology is different than for those who grew up with technology at their fingertips. Some of the teachers who were born outside the digital age seamlessly integrate technology into their classrooms and use it as a tool to communicate and build relationships with students, while others struggle to implement basic programs, or feel that they have the ability to utilize technology efficiently. Teachers' descriptions of the use of technology can be described as a spectrum. On one end, there are teachers who are Luddite, who struggle with the use of PowerPoint. On the other end, are teachers who integrate multiple forms of technology and have created seamless blended learning environments for their students. Between the two ends off the spectrum lie variations in the use of technology and implementations.

Teachers who were able to implement technology seamlessly into their classrooms explained that not only have they done district trainings, but they go above and beyond that and look for trainings that focus on technology outside of the district. For example, one teacher said that webinars over gamification were important tools and that she would sign up for them every opportunity that she had. It was important for the teacher to be able to learn when it was convenient for them. The teacher explained that at the end of the day, or on the weekend, teachers should be able to log into training and learn on-demand. The idea of online and blended learning training has been researched and supported by researchers such as Maciá and García (2016). Maciá and García found that through the use of MOOCs, teachers learned more than

traditional professional development, and were more likely to complete the professional development than if they had gone to a traditional training. By being able to learn when it was convenient for them, teachers

As a result of this research teachers should implement blended learning as a way to build classroom community and find a common language to communicate with their students. Districts can help make this happen by creating policies which support teachers' use of technology in their classrooms. In addition, districts can also provide hardware, such as computers and internet to support teachers' ability to utilize blended learning. As teachers in this study reported, those who had one to one capability through either the use of a classroom set of iPads or laptops, were able to create a seamless blended learning program for their students.

Blended learning was supported by two theories in this study: connectivism and guided didactic theory. Both supported the fostering of the student teacher relationship through the use of technology. Every teacher who participated in the interview portion of this research explained that the biggest part of their classroom was the relationship that they had with their students. All teachers explained that building a positive relationship with students was their first priority, as it allowed for students to trust the teacher enough to take the chances needed to be able to learn. In addition, teachers stated that technology was one way of helping to build a positive relationship with students. Teachers explained that when students can teach the teacher how to do something new with technology, it gave the student an opportunity to shine, and thus created a bond between the teacher and student.

One implication of this research is that age cannot be used as a determinate of how technologically savvy a teacher is, or the extent of the teacher's use of technology. Of the teachers interviewed the two oldest teachers were the ones who fully integrated technology into

their blended learning programs. Prensky (2011) used age as the determinate between those he called digital natives (those born in the digital age) and digital immigrants (people born before the proliferation of computers). Therefore, one of the biggest implications of this research is that being born outside of the digital age has less to do with the ability to utilize technology, whereas the desire to learn and be digitally knowledgeable is an individual choice.

Teachers and students are bombarded daily with technology in both school and personal life. While both teachers and students have a positive view of technology, the teachers who were interviewed all agreed that they use of technology must be tempered with the ability to build positive working relationships, and use non-technological ways of learning and assessing learning at times. School policy must be created to help teachers utilize the technology available to reach students and help them learn. Furthermore, the conceptual frameworks that supported this study emphasize the need for positive student-teacher relationships (Holmberg, 2016; Lokey-Vega et al., 2018).

**Recommendations for future practice.** Research should shape the way in which educators utilize technology and implement blended learning. Research should also shape the way school districts organized professional development with a focus on technology and blended learning. As a result of this research study, teachers could use blended learning as a way to engage students where they are academically, then help the student to improve both academically and socially. The results of this research also provided a guide for districts to help teachers who want to utilize a blended learning platform to learn how to incorporate it into their classroom effectively.

Throughout the interviews, many teachers reported that they went to professional developments and learned how to utilize different types of technology, but not how to integrate it

into their subject area. One participant stated that by having a professional development that was technology-driven, but content specific would be helpful. The participant stated that by learning how to integrate specific technology with the content and scope and sequence, it would help teachers utilize technology as a tool, not just an extra layer of activities.

Another area that could be improved for the implementation of blended learning, in the classrooms of teachers who were born outside the digital age, is to show teachers how to utilize a program, LMS, or any specific piece of technology then allow time for the teacher to try it on their own with the support of the professional development leader. One participant stated that it would be helpful for teachers to be able to see both the input and final product, meaning both the students' and teachers' side of a program or platform. By seeing both sides of the program, teachers believed that they would be better equipped to answer students' questions, or trouble shoot if a problem were to arise.

As technology becomes more integrated into education, research data should be considered when implementing both blended learning programs in the classroom, and professional development. Teachers who utilize professional development that is technologydriven outside of the district could be able to share what they have learned with their peers, thus encouraging an interest in technology and blended learning that might not have been noticed otherwise by other teachers. When teachers find a new program or application that help enhance student engagement and achievement, the administration needs to take note and help teachers share ideas between themselves and continue to improve their practice.

Lastly, the way in which districts go about teaching technology and another subject for professional development has been through traditional means (Miller et al., 2019). However, this research suggested that teachers would utilize and learn from online professional development
activities and that was geared toward content specific learning and that would allow them time to practice the new technology with guidance from the presenter. If teachers are expected to use technology in the classroom, then it makes sense to create professional learning opportunities that lead teachers by example. Thus, the overreaching idea is that teachers can be taught in the same way that students are taught. Technology and blended learning specifically offer an opportunity for engagement beyond the workday and additional support for those who need it, so that they feel comfortable enough to utilize it with their classes.

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

Future research regarding blended learning should focus on both teachers and students. Teachers of all ages should be surveyed to see what types of technology they use in their classrooms and how they utilize it to help students learn. Research should also include descriptions of academic outcomes for all learners. Teachers' descriptions of technology are very important in helping the researchers understand how that teacher views technology, as well as giving the researcher an insight as to what the teacher considered technology. Some teachers described PowerPoint as technology, while others do not view PowerPoint as technology. As technology changes and improves, it is important to understand how teachers utilize new technologies to work with students. Teachers' description of the technology and the effects of the use of technology in their classrooms is paramount in understating why, or why not a teacher implements blended learning in their classroom. Another area that was weak in this study was the definition of technology. Some teachers described PowerPoint and Word as technology, while other teachers described technology as the use of online gaming and virtual fieldtrips. One area which needs additional focus is the digital divide. Not all students nor teachers have access to and the ability to utilize technology in a meaningful way. Future practice must find a

way of closing the divide and helping breach the difference. Prensky (2011) postulated that age was one of the biggest factors that contributed to the dived and labeled those who were born in the digital age as digital natives, while those born before the digital age were considered immigrants. This research showed that age alone cannot define those who are digital citizens. Considerable research and efforts need to be made to mitigate the divide.

Another area of blended learning that should be researched is the affect of the digital divide on both students and teachers. Many people lack access to the internet at home. If a teacher does not have the capability of logging on their computer to work from home, how does that affect their description of technology. In addition, there are many rural areas that do not have the infrastructure for high speed internet; how does that affect both the teacher and the student? How does the lack of infrastructure affect the implementation and description of blended learning and technology from both the students and teachers?

Teachers' descriptions of professional development gave the researcher insight into how much the teacher believed they learned or did not learn. Future research should compare different forms of professional development. Quantitative studies could bolster proof of understanding and learning for each form of professional development. In addition to how much the teachers learn through each form of professional development; it is important to gage the likelihood that a teacher would sign up for the professional development. For example, are teachers more likely to sign up for an online class that allows the teacher to learn on their own schedule, or on demand, versus traditional face to face professional development.

#### Conclusion

Prior to this qualitative case study, it was unknown how teachers who were born outside of the digital era described the use of technology as it related to blended learning. It was also

unknown how that same group of teachers described professional learning opportunities which focused on the implantation of blended learning in their classrooms. Hung (2016) explained that more research needed to be done to understand teachers' descriptions of blended learning. This study focused on teachers' descriptions and used interviews to gain additional insight as recommended by Kormos (2018).

The teachers who participated in this study taught secondary school, which was a critical area that had not been researched previously according to Helms (2014) and Tang and Chaw (2016). The teachers who were interviewed shared their descriptions of technology not only in their classroom, but in their personal life as well. Teachers' descriptions of their use of technology could be placed on a spectrum, where on one end the teacher was practically Luddite, and struggled with the basic programs such as PowerPoint and Word. On the other end of the spectrum, those teachers had fully integrated technology into their classrooms, and their personal life. While these teachers did not grow up with technology, and were born outside of the digital age every single teacher who was interviewed had a positive outlook on the use of technology, and believed that blended learning provides an opportunity to help students no only with the course they are teaching, but also to learn skills that they will use later in life.

This research also focused on teachers' descriptions of professional development in regard to technology and how that professional development influenced the implementation of blended learning programs as recommended by Maciá and García (2016). The teachers who participated in this research, who had seamlessly integrated technology in their classrooms went above and beyond the traditional professional development offered by the district. Instead many of these teachers went out and found courses that were offered as webinars, online courses, or other forms of non-traditional professional development. All teachers who participated expressed

a desire for online professional development, as well as any type of professional development which would help, they create a better learning environment for their students.

This qualitative case study closed the gap in the above-mentioned areas of educational research regarding the implantation of blended learning, teachers' descriptions of blended learning, teachers' descriptions of professional development. Through questionnaires, interviews, and field notes, the researcher was able to construct a detailed description of how teachers describe blended learning and professional development opportunities that focused on technology and the implementation of blended learning in their classroom. The broad conclusion is that teachers believe that technology is crucial piece to helping students achieve their academic goals and attain future success. Furthermore, teachers like students want to learn in a technology driven format. Teachers believed that they would learn more if they had an opportunity to try out new programs and hardware with an expert there to help them if they had difficulties.

Students and teachers alike live in a digitized world. Teachers who were born outside the digital age, and who were considered digital immigrants by Prensky (2011), have made the transition to the digital society and are active members. As these teachers engage the digital natives in their classrooms, they are eager to help their students learn academic technology so that their students can be positive and productive digital citizens. However, teachers are not solely focused on the technology side of blended learning. As many teachers reported, the personal side is critical in teaching students; the relationship between teacher and students as well as between students is paramount in creating a meaningful learning environment. Beyond technology, there are many concepts that students learn in a face to face environment. Blended learning allows for those connections to continue to happen, while adding in the technology side,

which has the newest and best information; therefore, students get the best of both worlds (Draves, 2015).

The technology that is being utilized today will be obsolete in the next 10 years, however it lays the foundation for what is to come. Draves (2015) explained that the internet has revolutionized the way that teachers teach, and students learn. Blended learning offers the best of both worlds, traditional and online education. Teachers are able to help students individually while still keeping the majority of the class engaged and moving forward. As teachers embrace blended learning to help their students learn, they also see it as an opportunity to learn themselves. While the use of non-traditional professional development is not embraced by many districts, and there is much skepticism regarding the use of blended learning or online opportunities for professional development (Maciá & García, 2016). However, if teachers are teaching students through blended learning, and seeing the positive outcome of both face to face and internet born learning, then it would make sense that teachers too can learn through non-traditional methods.

Teachers are both educators and students depending on their activities. When teachers are a participant in professional development, then they themselves become the student. It would make sense that if teachers describe the use of blended learning in their classroom as positive, and a way to help students learn content at a deeper level, then the practice of blended learning would carry over to professional development. As the teachers who participated in this research confirmed, they believed that they would learn more, and be more active in professional development opportunities if they were on demand and allowed the teacher the flexibility to learn when and where they had time, and could learn best.

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## **Appendix A: Statement of Original Work**

The Concordia University Doctorate of Education Program is a collaborative community of scholarpractitioners, who seek to transform society by pursuing ethically-informed, rigorously- researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

#### Statement of academic integrity.

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

#### **Explanations:**

### What does "fraudulent" mean?

"Fraudulent" work is any material submitted for evaluation that is falsely or improperly presented as one's own. This includes, but is not limited to texts, graphics and other multimedia files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate's final work without full and complete documentation.

#### What is "unauthorized" assistance?

"Unauthorized assistance" refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another's work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

# **Statement of Original Work (Continued)**

I attest that:

- 1. I have read, understood, and complied with all aspects of the Concordia University– Portland Academic Integrity Policy during the development and writing of this dissertation.
- 2. Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the *Publication Manual of The American Psychological Association*.

meantin
Digital Signature
Melinda S. Payton
Name (Typed)
October 16, 2019
Date

#### **Appendix B: Request to Collect Data**

Greetings Secondary High School Principals,

My name is Melinda Payton, and I am currently working to earn my doctorate of higher education at Concordia University.

Part of the fulfillment of my doctoral program is the successful completion and defense of my dissertation. The topic of my dissertation is the teachers' perception of blended learning in a secondary school setting. With your permission, I would like to send a short questionnaire to you for you to send to the teachers on your campus. The questionnaire is not mandatory, and it is up to the teachers if they would like to participate.

If I have your permission to send you a questionnaire for you to send to your campus, please sign and return the attached form via email no later than close of business Friday, October 12, 2018.

I appreciate your time and look forward to working with you and your campus in the upcoming semester.

Kindest regards,

Melinda Payton

# Appendix C: Approval to Collect Data From Site

Dear Concordia University-Portland IRB Committee:

I, principal of	
hereby give Melinda Payton permission to send me a link to the blended learning ques	tionaire. I
agree to send the questionaire out to the teachers on my camps via email. I understand	that
teacher participation will be kept confidential, and is not required by all techers.	
Thank you,	

Signature

Date

# **Appendix D: Consent Form**

Research Study Title: Secondary Teacher Perception of Blended Learning Principal Investigator: Melinda Payton Research Institution: Concordia University–Portland Faculty Advisor: Dr. Jillian Skelton Ph.D.

## Purpose and what you will be doing:

The purpose of this survey is to explore how teacher perception of blended learning affects the implementation of blended learning into the classroom. We expect approximately 50 volunteers. No one will be paid to be in the study. We will begin enrollment on \_\_\_\_\_\_ and end enrollment on \_\_\_\_\_\_. To be in the study, you will complete the subsequent questionnaire. If you would like to take part in the interview portion, please include your contact information on the last question.

Doing these things should take less than 30 minutes of your time.

## **Risks:**

There are no risks to participating in this study other than providing your information. However, we will protect your information. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying the information you give will be kept securely via electronic encryption or locked inside the [redacted]. When we or any of our investigators look at the data, none of the data will have your name or identifying information. We will only use a secret code to analyze the data. We will not identify you in any publication or report. Your information will always be kept private, and then all study documents will be destroyed 3 years after we conclude this study.

## **Benefits:**

Information you provide will help scholars understand how teacher perception affects the implementation of blended learning in their program. You could benefit this by streamlining your personal perceptions regarding technology and blended learning.

#### **Confidentiality:**

This information will not be distributed to any other agency and will be kept private and confidential. The only exception to this is if you tell us abuse or neglect that makes us seriously concerned for your immediate health and safety.

## **Right to Withdraw:**

Your participation is greatly appreciated, but we acknowledge that the questions we are asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required, and there is no penalty for not participating. If at any time you experience a negative emotion from answering the questions, we will stop asking you questions.

## **Contact Information:**

You will receive a copy of this consent form. If you have questions, you can talk to or write the principal investigator, Melinda Payton at email [redacted]. If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (email <u>obranch@cu-portland.edu</u> or call 503-493-6390).

## Your Statement of Consent:

I have read the above information. I asked questions if I had them, and my questions were answered. I volunteer my consent for this study. By continuing through this questionnaire, you are granting your consent to be a part of this study.

## **Appendix E: Online Survey Questions**

Directions: Please answer all questions to the best of your ability. For open-ended questions, please write detailed answers of between three to five sentences.

**Demographic Questions** 

- 1. Age
- 2. Gender
- 3. Ethnicity
- 4. Subject taught
- 5. How many years have you been teaching
- 6. How many in-services or professional developments have you taken that relate to technology and blended learning?
- 7. How did the in-services or professional development courses influence your use of blended learning in your classroom?
- 8. How frequently do you use blended learning in your classes?
- 9. What format of blended learning do you utilize in your classroom?

#### **Open-ended Questions**

- 1. How do you use blended learning in your classroom?
- 2. How old were you the first time you used a computer, and in what capacity did you use it?
- 3. What forms of technology do you utilize on a daily basis in your personal life?
- 4. What forms of technology do students in your class utilize on a daily basis?
- 5. Do you believe that technology is necessary for a student to be successful? Why?
- 6. How often do you believe technology should be used within the classroom?

- 7. What form of blended learning to you utilize most frequently?
- Describe the results of your blended learning implementation of a blended learning program in your classroom.
- 9. If you would be willing to participate in a brief interview, either in person or via web conferencing using Talky io, please provide your name, phone number, and email address. If you do not wish to participate in an interview, please leave this question blank.

Research Questions	Protocol Question 1	Protocol Question 2	Protocol Question 3	Protocol Question 4	Protocol Question 5
R1: How does that perception affect the implementation of blended learning in their classroom?	How would you describe your relationship with technology?	Do you believe that you have a positive or negative perception of technology?	When planning your lessons, how frequently do you plan the use of technology?	How has using a blended learning program changed your classes?	Do you believe that the infrastructure provided by the district allows you to access the technology that you use in your classroom?
R2: How does professional development influence teachers' perceptions on the use of blended learning and the use of technology in the classroom?	Describe your first professional development, which taught you about blended learning.	How frequently do you take professional development classes that relate to technology and blended learning?	What kinds of courses would you like to take, regarding blended learning in the future?	How has professional development over blended learning improved your understanding of implementing blended learning programs in your classroom?	What types of professional development courses have you taken that relate to the use of technology?

# Appendix F: Questions for Semistructured Protocol