2021

Teachers' Perceptions of Blended Learning in High School Classrooms

Kaye-Ann Tomique Yarborough
Walden University

Walden University

College of Education

This is to certify that the doctoral study by

Kaye-Ann Yarborough

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Loren Naffziger, Committee Chairperson, Education Faculty
Dr. Sunddip Aguilar, Committee Member, Education Faculty
Dr. Mary Lou Morton, University Reviewer, Education Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

Teachers' Perceptions of Blended Learning in High School Classrooms

by

Kaye-Ann Yarborough

MA, Walden University, 2015

BS, The Mico University 2009

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

August 2021

Abstract

Blended learning is the instructional practice that involves both face-to-face and online learning in classroom instruction. The problem at a small rural school district in the South Carolina is, despite strong evidence of the benefits and use of blended learning, many classroom teachers at the high school level still fail to consistently implement the online component of blended learning to maximize these benefits. Therefore, the purpose of this basic qualitative study was to explore teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. The conceptual framework for this study is the technology acceptance model. Research questions involved teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. I collected data by interviewing 12 participants via semi-structured telephone interviews. Interviews were recorded, transcribed, and analyzed using a five-step analysis method for thematic analysis: compiling, disassembling, reassembling, interpreting, and concluding. The findings suggest that teachers perceive blended learning as easy to use and useful. Also, teachers use either the flipped classroom model or face-to-face driver model for blended learning implementation. Further, participants cited Internet access and teacher technology competencies as challenges preventing blended learning implementation, while support, one-to-one initiatives, and professional development allowed for successful implementation. The findings of this study have social change implications in high school classrooms. Both teachers and administrators will gain valuable knowledge to help them make decisions regarding blended learning implementation to break down barriers preventing blended learning in classroom instruction.

Teachers' Perceptions of Blended Learning in High School Classrooms

by

Kaye-Ann Yarborough

MA, Walden University, 2015

BS, The Mico University 2009

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

August 2021

Dedication

I dedicate this study to my mother, who worked assiduously and sacrificed everything to help me become the person I am today. Mom, those late nights helping me with homework under the candles' dim lights were not in vain. I love you, mom. Also, to my sisters, Nickeisha and Nioka, and my brother Tajarie, your support and encouraging words have kept me focused on this journey.

I also dedicate this study to my sons Damion and Tyreke. Thanks for understanding though I know sometimes you both felt neglected. You were both willing to help out where you could so I could complete this study, and you never complained when you had to miss out on fun opportunities. Thanks again; I love you both. Thanks to all my friends and well-wishers who were there to motivate, encourage me when I felt overwhelmed and burdened. I appreciate you all as you have helped with my success on this journey.

Acknowledgments

Special thanks to my committee members; without you, all this would not be possible.

Dr. Naffziger, you have been more than a Chair; you are a motivator, mentor, a rock. Whenever I

felt nervous or unsure, you knew just the words to encourage and motivate me. Your feedback

was always quick and to the point and guided me as I improved my writing and improved my

study. Thanks, Dr.Aguilar, for your quick and valuable feedback that has helped me develop this

study and made completing this paper a success. Also, thanks to Dr. Morton for being my URR

for providing feedback to help grow my study.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

The use of technology in K-12 classrooms has been steadily increasing. Kellerer et al. (2014) stated that there was a dramatic increase in the number of high school students taking at least one online course, from 570,000 to over 6.5 million. Kellerer et al. (2014) predicted that this increase would continue whereby at least 50% of high school courses will be offered online by 2019. Lalima and Dangwal (2017) defined blended learning as an innovative concept that allows teachers to use technology-supported learning with traditional classroom teaching. According to Lalima and Dangwal (2017), schools adopt new technologies and explore new strategies for integrating technology to give all students equal educational opportunities. Carver (2016) suggested that the use of technology in the classroom could positively affect student motivation, attitude, engagement, and self-confidence. Integrating blended learning in classroom instruction can also help students improve organization and study skills and academic achievement (Carver, 2016). Therefore, according to Carver, the increased use of blended learning in K-12 classrooms resulted from the fact that it facilitates and improves student engagement and learning.

Many teachers experience challenges with the implementation of blended learning. Nevertheless, an increased number of high school teachers use blended learning to aid instruction (Blaine, 2019). According to Lightner and Lightner-Laws (2016), teachers find it challenging to effectively integrate the online component of blended learning into classroom instruction. Brown (2016) also suggested that some teachers lack the literacy and competency skills needed to implement blended learning successfully.

Lalima and Dangwal (2017) indicated that teachers must receive training on integrating technology and developing content in a digital form to implement blended learning successfully. Teachers must also have a positive attitude towards the blended learning process and a positive approach to change (Lalima & Dangwal, 2017). If implemented with the right attitude, blended learning could become the educational system's future (Lalima & Dangwal, 2017). Therefore, with training and a positive attitude, teachers can overcome challenges faced when implementing blended learning in classroom instruction to help students benefit from blended learning.

It is critical to explore how high school teachers are implementing blended learning in their classroom instruction. Culbertson (2018) suggested that exploring teacher perception of blended learning implementation will provide educators with research-based approaches that could improve blended learning instruction that facilitates the development of students' academic, personal, and social skills. Consequently, this study may impact social change by informing the practice of many educators seeking technology integration strategies that can improve students' academic performance and high school persistence.

Chapter 1 includes the background, problem statement, purpose statement, research questions, and conceptual framework. This chapter also includes the nature of the study, definitions of key terms, assumptions, limitations, scope, delimitations, and significance of the study.

Background

The use of technology for blended learning is rapidly increasing in K-12 education. Mathews (2017) characterized blended learning as an instructional practice that involves using face-to-face and online learning opportunities that give learners some control over the pace, place, path, and learning time. In 2016, the United States (U.S.) Department of Education in the National Education Technology Plan requested personalized learning experiences and technology as a platform for transforming America's education system. According to Bingham (2016), over 70% of teachers engage students in blended learning. Also, as blended learning continues to increase in K-12 education, some states require that all students participate in at least one online course before they graduate high school (Bingham, 2016). Therefore, in today's educational system, K-12 blended learning has become one of the fastest-growing areas because it provides students with opportunities to engage in personalized learning.

The gap in practice of this study involves challenges teachers have with implementing blended learning. According to Boelens et al. (2017), many practitioners struggle with implementing blended learning in their classroom instruction, preventing them from implementing blended learning consistently. The district's technology specialist also reported that teachers are not implementing the online blended learning component with fidelity. Also, issues with consistently implementing blended learning in classroom instructions are recognized worldwide. Cheok et al. (2017) reported that, when given access to online learning technologies in a secondary school in Malaysia, there was evidence of poor adoption as many teachers were reluctant to integrate eLearning in

classroom instruction. Gil-Flores et al. (2017) and Kihoza et al. (2016) also reported low usage of information and communication technologies (ICT) among secondary school teachers to facilitate blended instruction.

Edannur and Marie (2017) found that teacher perception and lack of training are critical factors contributing to teachers' reluctance in terms of technology-integrated blended learning. However, the extent to which teacher perceptions affect their decision to implement blended learning is still unknown (Edannur & Marie, 2017). Moreover, with limited literature about teachers' perceptions of blended learning in high schools, many teachers remain unaware of the benefits (Turner et al., 2018). Greene and Hale (2017) said how teachers implement blended learning determines whether blended learning is beneficial to teaching and learning.

Problem Statement

The problem is despite strong evidence of the benefits and use of blended learning, many classroom teachers at the high school level still fail to consistently implement the online component of blended learning to maximize these benefits. There is a significant gap in practice regarding implementing the online component of blended learning. According to Turner et al. (2018), technology-enhanced blended learning, a driving force in educational reform, is rapidly expanding as more than half of high school students enroll in blended learning courses by 2019 during their high school tenure. The federal Every Student Succeeds Act (ESSA), signed in 2015, may led to 42% percent of high schools adopting the blended learning model for online credit recovery to improve graduation rates (Noble et al., 2017). According to the ESSA, all states must ensure all

students meet their academic goals, close academic achievement gaps with other students, and raise high school students' graduation rates (U.S. Department of Education, 2020).

The blended learning model for online credit recovery allows students to retake failed courses and earn needed credits to meet graduation criteria (Noble et al., 2017). Irawan et al. (2017) suggested that blended learning can increase student interest and enthusiasm for academics. Also, Irawan et al. found that blended learning is a solution for overcoming learning difficulties. Compared to students in a traditional learning environment, students engaged with blended learning had a significant increase in learning outcomes as students learning outcome increased by 82 % with blended learning instruction compared to the 73% increase in the traditional learning instruction (Irawan et al., 2017). However, the implementation of blended learning is inconsistent, causing a gap in practice. High school teachers must consistently implement blended learning to meet ESSA requirements and improve students' academic achievement.

Furthermore, issues with consistently implementing blended learning in classroom instruction exist both locally and nationwide. According to Lawrence and Tar (2018), many teachers face problems, such as lack of resources to support blended learning, technical support, and training, which prevents them from implementing blended learning with fidelity. Some teachers in K-12 schools located in the Midwest also reported that lack of time to integrate technology in classroom instruction and inability to keep up with technology changes had impeded their efforts to implement blended learning (Hsu, 2016). Edannur and Marie (2017) found that teacher perception and

attitude and lack of training are critical factors contributing to teachers' reluctance to integrate blended learning. However, the extent to which teacher perceptions affect decisions to implement blended learning is unknown. Moreover, with limited literature regarding teachers' perceptions of blended learning in high schools, many teachers remain unaware of the benefits (Turner et al., 2018).

According to the South Carolina State Department of Education (2017), many blended learning tools are aligned to state standards and designed to improve student performance and increase the graduation rate. The South Carolina State Department of Education reported an increase in the state's high school dropout rate from 2.3% to 2.4% between the 2015-2016 and 2016-2017 school years. In a high school in a rural school district in South Carolina, the school report card's overall rating for 2018 was 57/100 and 51/100 in 2019, respectively. Student academic performance is weighed as 30 out of the total score of 100 on the report card based on end of course assessments in English 1 and Algebra 1 (South Carolina State Department of Education, 2019). However, this high school received below-average grades for both years in terms of student academic performance, with scores of 12.18/30 in 2018 and 10.20/30 in 2019 (South Carolina State Department of Education, 2019). The high school implemented blended learning to improve student achievement. According to Noble et al. (2017), high schools across the U.S.) use technology-aided credit recovery to reduce dropout rates. Therefore, with blended learning implementation, high school students' academic achievement could improve, thus improving graduation rates.

At the same rural high school in South Carolina, the principal stated that there are no established technology plans. Teachers and students were issued one-to-one technology tools and received ongoing training in technology implementation and blended learning. However, the Instructional Technology Specialist at this high school said many teachers do not consistently integrate blended learning. The Instructional Technology Specialist also noted that some teachers are reluctant to integrate technology into their classroom instruction. According to the principal at the same high school, approximately 50% of teachers consistently implement blended learning. By contrast, some teachers choose one online technology and refuse to learn new technologies. The use of technology in the classroom as a learning tool has increased over the last decade, with many schools adopting one-to-one technology (Henderson-Rosser & Sauers, 2017).

Purpose of the Study

The purpose of this basic qualitative study was to explore teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. The use of technology in high school core content classrooms has been steadily increasing (Lalima & Dangwal, 2017). Carver (2016) suggested that using technology in K-12 classrooms could positively affect student motivation, attitude, engagement, and self-confidence. However, the district's technology specialist stated that teachers are not consistent in terms of implementing blended learning. Using the interpretive paradigm, I explored this phenomenon by interviewing 12 core content high school teachers who teach mathematics, science, English language

arts, and social studies/history and have had at least 1 year of experience implementing blended learning in their classroom instruction.

Research Questions

The following qualitatitve research questions guided this study:

RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?

RQ2: How do core content teachers implement blended learning in their classrooms?

RQ3: What are teachers' perceptions of challenges related to implementing blended learning?

Conceptual Framework

This study's conceptual framework is the technology acceptance model (TAM). According to Davis (1989), the two basic constructs of TAM are perceived usefulness (PU) and perceived ease of use (PEU). PU refers to whether teachers believe that technology will help them perform better (Davis, 1989). PEU refers to whether teachers believe that using technology easy (Davis, 1989). Further, Davis (1989) said PU and PEU are the fundamental determinants of user acceptance. Therefore, if teachers believe that blended learning is useful and easy to use, they are more likely to implement blended learning in their classroom instruction. By drawing on the TAM, I explored teachers' PU and PEU in terms of of blended learning technology and how it may influence user acceptance. Further, the framework informed research questions as the questions aimed to identify how teachers implement blended learning and how their perceptions of online

components influenced their implementation of blended learning to maximize its benefits. I discuss the conceptual framework further in Chapter 2.

Nature of the Study

I chose a basic qualitative method for this dissertation. According to Merriam and Tisdell (2016), a basic qualitative study entails gathering meaning about a phenomenon based on individuals' experiences. Burkholder et al. (2016) stated that qualitative research involves generating meaning and understanding of a phenomenon through descriptions obtained from exploring human experiences. Quantitative research methods provide a more generalized understanding of a phenomenon (Creswell & Clark, 2017). Also, quantitative research involves examining relationship between different variables and understanding of many different individuals, which often diminishes individual participants' voices (Creswell & Clark, 2017). However, qualitative research allows researchers to explore a problem, incorporate participants' views, and communicate their perceptions (Creswell & Clark, 2017). According to Merriam and Tisdell (2016), the basic qualitative method involves focusing on meaning in context as perceived by individuals and their experiences. Qualitative research is also inductive, allowing researchers to derive richly descriptive findings from data through themes and categories (Merriam & Grenier, 2019). Therefore, the qualitative approach is most suitable for this study as it aligns with the problem, purpose, and research questions.

Furthermore, the basic qualitative design was used in this study to help understand how teachers implement blended learning and their perceptions of its implementation in high school classrooms in a rural school district in the South Carolina.

I interviewed 12 core content teachers using qualitative questions regarding their perceptions of blended learning implementation in classroom instruction. Consequently, the study provided richer insights into teachers' perceptions concerning factors that prevent or enable the implementation of online learning tools to facilitate blended learning in core content classrooms.

Data collected from the interview were analyzed using Yin's five-step analysis for thematic analysis: compiling, disassembling, reassembling, interpreting, and concluding. First, I compiled data by transcribing interviews and collating data. Then, I disassembled the data by coding to identify distinctive features, such as patterns, similarity in features, order of presentation, context, and meanings. Next, I formulated themes by reassembling codes and categories. I then interpreted the data by analyzing themes. Finally, I formulated conclusions using themes derived from the analysis process. I discuss the data analysis plan further in Chapter 3.

Definitions

Blended learning: Also known as hybrid learning, this is a combination of online learning and traditional face-to-face learning approaches (Blaine, 2019; Lu et al., 2018).

Credit recovery: Strategies that allow students who have failed or are at risk of failing courses required for high school graduation to retake or earn credits for these courses so they can complete course requirements (Noble et al., 2017).

Flipped classroom: Moving of direct instruction outside of the classroom environment and allowing students to engage in active learning in the classroom (Gough et al., 2017).

Gamification: Gamification is the use of game-based mechanics and thinking to engage and motivate learners to learn and develop problem-solving skills (Buckley & Doyle, 2016)

Learning management system (LMS): Bernstein and Mosenson (2018) defined the LMS as a digital platform that teachers use to plan instruction, deliver content, monitor student participation, and assess student learning.

Mobile learning: The use of personal electronic devices to engage in learning through social and content interactions (Crompton et al., 2017).

Perceived ease of use (PEU): PEU measures whether individuals believe that they can use information system effortlessly (Davis, 1989; Scherer et al., 2019).

Perceived usefulness (PU): PU measures whether individuals believe that information systems enhance their job performance (Davis, 1989; Scherer et al., 2019).

Personalized learning: Adapting or modifying learning for individual students based on their interest, strengths, and needs (Basham et al., 2016)

Assumptions

Research assumptions are any issues, ideas, or positions found throughout the study that the researcher took for granted, viewed as reasonable, or accepted (Theofanidis & Fountouki, 2018). An assumption in this study was that participants knew how to integrate technology-aided blended learning in classroom instruction, since the school has adopted one-to-one technology and has monthly technology personal development sessions with the district's technology specialist. Another assumption is that participants were aware of the benefits of blended learning. The basis of this assumption is that the

school district mandates all teachers implement blended learning based on the premise that it will increase student achievement. Another assumption was that participants answered interview questions with honesty and presented accurate perceptions of blended learning implementation. It was assumed that once participants read and signed the informed consent form agreeing to participate in the study, they understood their responses would be private and confidential, thus allowing them to answer questions honestly.

Scope and Delimitations

The setting for this study is a high school located in a small rural school district in South Carolina. Teachers have access to a plethora of technology tools that they can choose from when implementing online components of blended learning. However, teachers are not consistently implementing blended learning. All teachers must implement blended learning in their classroom instruction since the school district in South Carolina adopted the one-to-one initiative in 2016. I chose this topic to understand why teachers are not implementing blended learning consistently. The population included in this study are high school teachers in core content classes of mathematics, science, social science, and English language arts who had at least 1 year of experience integrating blended learning in their classroom instruction.

Since the setting for this study is a small rural school district in South Carolina, findings may not be transferable to a larger school district or school districts outside of South Carolina. According to Connelly (2016), it is the reader's responsibility to

determine if the findings in the study apply to their situation. Therefore, individuals can choose to use these findings if they find data relatable in terms of their specific setting.

Limitations

Limitations are potential weaknesses that the researcher cannot control (Theofanidis & Fountouki, 2018). A limitation for this study was that the setting for this study is a high school located in a small rural school district in South Carolina. Since the school district is small, findings generated in this study will not reflect teachers' perceptions in large school districts or districts located in urban areas. Another limitation was that participants in this study were small sample of 12 teachers of core content subjects such as mathematics, science, social sciences (history and social studies), and English language arts. Participants were selected using purposeful sampling, where participants are chosen intentionally by the researcher. Also, since the sample size is small, the study's findings are not generalizable to the entire population. However, according to Ravitch and Carl (2016), qualitative research and purposeful sampling do not generalize, so the sampling size will not affect study outcomes. Also, data collected are limited to participants' responses during interviews as there were no followup interviews.

Significance

There is a significant gap in practice regarding the implementation of blended learning. The local setting's school population is equipped with one-to-one technology to facilitate blended learning implementation. However, the district's technology specialist reported that teachers are not consistent in terms of implementing blended learning. Luo

et al. (2017) stated that though teachers have the task of implementing blended learning, some do not possess appropriate skill sets needed for effective blended learning integration, as they did not receive enough training. Hence, many practitioners struggle to implement blended learning in their classroom instruction (Boelens et al., 2017).

Therefore, exploring teachers' perceptions of blended learning, how they implement it, and challenges they have with implementation provides educators with data that will help them improve blended learning instruction that facilitates the development of students' academic, personal, and social skills. Also, data in this study provides meaningful information to high school administrators and teachers, thus leading to implications for social change. Understanding teachers' perceptions of blended learning implementation in high school classrooms will help both teachers and administrators make decisions that will help break down barriers preventing blended learning in classroom instruction. As such, teachers might receive more training and professional development regarding implementing blended learning, managing blended learning classroom environments, or any other needs training for the successful implementation of blended learning. This study will also provide administrators and teachers with foundations for implementing blended learning to improve student learning. Teachers will be able to identify and develop new blended learning strategies and enhance the use of online technologies in the class to maximize the benefits of blended learning.

Summary

Blended learning allows teachers to use technology-supported learning with traditional classroom teaching to improve students' academic performance (Lalima &

Dangwal, 2017). However, there is a significant gap in practice regarding blended learning implementation due to lack of training, teachers' perceptions, and reluctance to integrate technology in classroom instruction. The problem is that despite strong evidence of the benefits and use of blended learning, many classroom teachers at the high school level still fail to consistently implement the online component of blended learning to maximize these benefits. Therefore, in this study, I explored teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. The study also focused on how high school teachers consistently implement the online component of blended learning in high school classrooms, their perceptions regarding the implementation of blended learning, and how their perceptions affect their decision to implement blended learning. The study is a basic qualitative design with a conceptual framework using the tenets of the TAM, PEU, and PU of blended learning.

According to Burkholder et al. (2016), qualitative research generates meaning and understanding of a phenomenon through descriptions obtained from exploring human experiences. I conducted semi-structured telephone interviews with a small sample consisting of 12 core content teachers to collect data that answered the research questions. Participants from a high school in a small rural school district in South Carolina who have had at least 1 year of experience implementing blended learning in their classroom instruction participated in this study. Data collected from this study provided meaningful information to high school administrators and teachers, thus leading to implications for social change.

The literature review in Chapter 2 includes information regarding teachers' perceptions of blended learning. The literature involves how teachers implement the online component of blended learning and benefits associated with blended learning implementation. Also, the review addresses barriers preventing consistent implementation of blended learning in high school classroom instruction.

Chapter 2: Literature Review

The use of blended learning in K-12 education is rapidly expanding, and the number of students enrolled in blended learning courses has increased (Blaine, 2019; Molnar et al., 2019; Sublett & Chang, 2019; Whiteside et al., 2016). Blended learning is an instructional practice that involves using face-to-face and online learning opportunities that give learners some control over the pace, place, path, or learning time (Blaine, 2019; Mathews, 2017). Blended learning is highly beneficial for high school students as it helps with credit recovery, improves interest, engagement, and academic outcomes, and allows teachers to differentiate instruction to meet students' learning needs (Brodersen & Melluzzo, 2017; Irawan et al., 2017; Pulham & Graham, 2018;).

However, the problem is despite strong evidence of the benefits and use of blended learning, many classroom teachers at the high school level still fail to consistently implement the online component of blended learning to maximize these benefits. There is a gap in practice in implementing blended learning as many practitioners are struggling with the implementation of blended learning in their classroom instruction, preventing them from implementing blended learning consistently (Boelens et al., 2017; Kihoza et al., 2016; Rasheed et al., 2020). Therefore, the purpose of this basic qualitative study was to explore teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. The focus of this study was on how teachers' PEU and PU of blended learning technologies affect their decisions to implement blended learning in their classroom instruction.

In this literature review, I examined various studies on technology integration and blended learning implementation to address how teachers implement the online component of blended learning. Also, I explored themes that arose from literature such as blended learning in education, one-to-one initiatives, benefits of blended learning, barriers to blended learning, and teachers' perceptions of technology integration. I also discussed the future of blended learning.

Literature Search Strategy

I reviewed literature on teachers' perceptions of blended learning implementation in high school classrooms. I used the Walden Library database and Google Scholar to source articles from ERIC, ProQuest, EBSCOHost, SAGE Publications, Taylor and Francis, and Science Direct. I used the following key terms and term combinations to gather information from these sources about the topic: *blended learning*, *blended learning in high schools*, *teacher perceptions of blended learning*, *high school dropout rates and blended learning*, *barriers to blended learning in high school classroom instruction*, *technology acceptance model*, *origin of blended learning*, *implementing blended learning*, and *benefits of blended learning in high school*. I also conducted research using various authors' names found in the literature regarding teachers' perceptions and attitudes towards blended learning in high school classrooms to find current studies. Various themes emerged from the literature review, including the development of the TAM, PEU and PU, traditional face-to-face learning, blended learning in education, one-to-one initiatives, blended learning models, benefits of blended

learning, barriers to blended learning, teachers' perceptions of technology integration, and future of blended learning. I discuss these themes explicitly in the literature review.

Conceptual Framework

Development of the TAM

The TAM is one of the most influential theories used to define an individual's acceptance of information systems. The TAM is derived from the theory of reasoned action (TRA), which is a social psychology theory. The TRA suggests that attitude and subjective norms affect human behavioral intentions (Hsiao & Yang, 2011; Scherer et al., 2019). Napitupulu et al. (2017) said the purpose of the TAM framework is to help researchers analyze and understand factors that affect user acceptance of technologies based on perceptions. As shown in Figure 1, the behavioral principles of TAM are PEU and PU. PU measures whether individuals believe that information systems will enhance their job performance, while PEU describes whether individuals believe that they can use information systems effortlessly (Abdullah & Ward, 2016; Davis, 1989; Scherer et al., 2019). One significant difference between the TRA and TAM is the addition of behavioral intention. Behavioral intention indicates whether the user is ready to use the system or technology, which leads to the actual usage (Tarhini et al., 2017). Therefore, PU and PEU determine user acceptance, and behavior intention determines the actual use of blended learning.

Researchers mostly use the TAM when exploring the acceptance and use of technology, eLearning, and blended learning in classroom instruction. Numerous researchers have examined and developed the TAM to reflect the external factors that

might affect PU and PEU. According to Abdullah and Ward (2016), external factors may impact PEU and PU, and PEU directly impacts PU. Also, PEU and PU affect users' attitudes towards technology use (Abdullah & Ward, 2016). Further, both PEU and users' attitudes impact users' intentions to use, determining whether users use the technology (Abdullah & Ward, 2016). Abdullah and Ward (2016)said self-efficacy, subjective norms, computer anxiety, and experience were the most common factors impacting the TAM. Nikolopoulou and Gialamas (2016) said teachers' personal and professional experiences are external factors that impact their decision to accept or use technology in their classroom.

Figure 1

Extended TAM
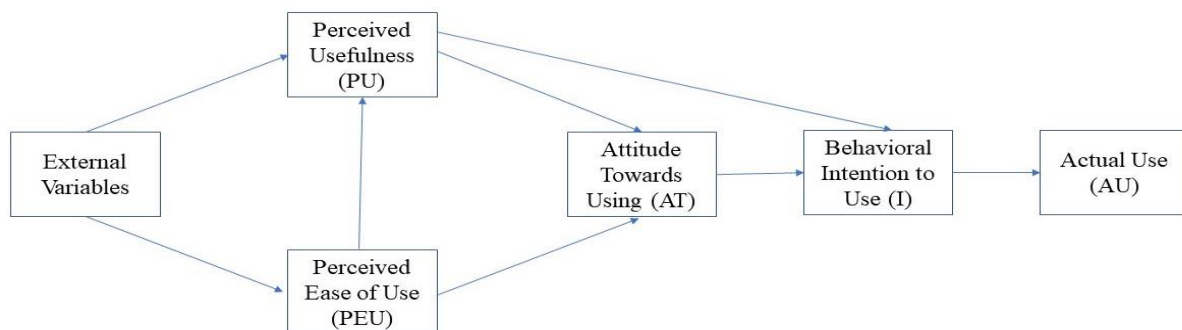
PEU and PU

Napitupulu et al. (2017) said PEU and PU are valid indicators for determining user acceptance of technology. PEU is a measure of whether individuals believe they can

effortlessly use information systems (Abdullah & Ward, 2016; Davis, 1989; Scherer et al., 2019). PEU positively affects users' behavioral intentions towards the use of a system (Tahini et al., 2017; Wu & Chen, 2017). A user's intention to accept a system through PU is directly or indirectly affected by PEU (Wu & Chen, 2017). PU is a measure of whether individuals believe that information system swill enhance their job performance (Abdullah & Ward, 2016; Davis, 1989; Scherer et al., 2019). According to Wu and Chen (2017), teachers determine if a system is useful by assessing whether it improves student learning. PU directly affects a user's intention to use a system and mediates PEU when users decide to use a system (Wu & Chen, 2017).

According to Scherer et al. (2019), the tenets of the TAM are useful in predicting teachers' technology acceptance and adoption. Both PEU and PU influence individual intentions to use or integrate technology (Tarhini et al., 2017). Therefore, the user's perceptions form the basis of user acceptance (Hsiao & Yang, 2011). The TAM is useful for explaining individuals' acceptance of technology based on their perceptions of whether the technology or innovation is easy to use or useful (Cheok et al., 2017; Hsiao & Yang, 2011; Scherer et al., 2019). Cheok et al. (2017) said teachers have autonomy in terms of choosing whether to integrate technology or which technology to use in their classroom instruction; hence, PEU and PU serve as the driving forces when deciding to implement blended learning. Therefore, by using the TAM, I focused on teachers' perceptions of PU and PEU when implementing blended learning technology and how it affects user acceptance. Also, the framework informed research questions and analysis.

Literature Review Related to Key Concepts

Traditional Face-to-Face Learning

Staker and Horn (2012) defined traditional learning as face-to-face teacher-centered instruction where the teacher imparts knowledge to students. Therefore, a traditional learning environment is considered a rigid environment controlled by the instructor (Sharma & Garg, 2016). According to Lin et al. (2016), students are taken through the curriculum at the same pace in a traditional learning environment, whether or not they have mastered the content. As a result, some students experience frustration that sometimes leads to incomplete assignments and poor academic performance (Lin et al., 2016). Lin et al. (2016), using an achievement test, evaluated junior high school students' academic achievement in mathematics and found that students engaged in blended learning instruction had significant improvements in their test scores when comparing the pre- and post test scores. Sharma and Garg (2016) said the learner must have self-efficacy and motivation to succeed in a traditional classroom learning environment.

The addition of technology in the traditional classroom could benefit students. According to Sharma and Garg (2016), traditional classroom learning has become nonadaptive and obsolete. Sharma and Garg examined students' academic performance in traditional learning and web-based virtual learning environments to determine the differences between both environments in relation to students' academic achievements. Sharma and Garg found that students in web-based virtual environments have a significantly higher academic performance on the evaluation test. Therefore, the use of multimedia, telecommunications, and web-based virtual learning tools for imparting

learning in nonadaptive traditional learning environments emerged to provide learners with a more flexible and self-directed learning experience that increases their academic performance (Sharma & Garg, 2016). Tang and Chaw (2016) said blended learning in traditional classroom environments promotes independent learning, higher classroom efficiency, teaching flexibility, and better student engagement while retaining effective face-to-face teaching strategies.

Blended Learning in Education

The advent of online learning in the 1990s has opened the possibilities of blended learning. In the 21st century, blended learning has been adopted in many institutions which include K-12 educational systems (Pulham & Graham, 2018; Zhonggen, 2016). The use of blended learning in K-12 education is rapidly expanding (Blaine, 2019; Whiteside et al., 2016). According to the National Education Policy Center, student enrollment in blended learning schools has increased by 16,000 between the 2016-2017 and 2017-2018 school years (Molnar et al., 2019). Therefore, blended learning is becoming the new normal in K-12 education.

Mathews (2017) characterized blended learning as an instructional practice that involves using face-to-face and online learning opportunities which give learners some control over the pace, place, path, or learning time. Also, using blended learning allows teachers to mix traditional teaching approaches with technology to enhance teaching and learning while allowing students to work at their own pace (Boelens et al., 2017; Kihoza et al., 2016). Therefore, with blended learning, online learning's innovative and technological advances are integrated with interaction and participation in a traditional

learning environment (Irawan et al., 2017). With the flipped classroom method of
blended learning, teachers can teach within and outside of the classroom (Gough et al.,
2017). For example, with flipped classrooms, teachers remove direct instruction from the
classroom by providing students with recorded or video lessons that they can watch at
home (Gough et al., 2017). Students are then engaged in active learning in the classroom
or can perform tasks that are usually considered homework (Gough et al., 2017).

According to Pierce and Cleary (2016), diversity exists in K-12 educational
technology use in terms of blended learning. Some teachers are implementing blended
learning in schools with an abundance of technology tools and unlimited access to the
Internet (Pierce & Cleary, 2016). Conversely, in some schools, teachers use digital tools
with limited access to technology devices and the Internet (Pierce & Cleary, 2016).
Pierce and Cleary said that the U.S. possesses finances and capabilities to help schools
provide a more comprehensive and equitable influx of technology resources in K-12
classrooms. Therefore, K-12 education could experience a dramatic increase in
technology usage and blended learning instruction (Pierce & Cleary, 2016).

Using a hierarchical linear model and multilevel modeling quantitative study that
included 16 schools and 624 teachers and 20 school administrators from grades 6-12,
Vongkulluksn et al. (2018) found that teachers' beliefs and attitudes towards technology
integration had a significant impact on whether they integrated technology in their
classroom instruction. Teachers were more invested in implementing blended learning in
their classroom instruction if they believed that blended learning technologies would
enhance their teaching practice or improve student learning (Scherer et al., 2019;

Vongkulluksn et al., 2018). Also, administrators' support of blended earning instruction

impacts teachers' perceptions and ability to implement blended learning effectively.

Administrators supporting blended learning may provide teachers with needed resources

and personal development. Having access to technology for implementing blended

learning does not guarantee effective or consistent technology integration (Vongkulluksn

et al., 2018). Effective and consistent implementation of blended learning depends to

some extent on teachers' perceptions and administrative support.

One-to-One Initiative

Blended learning continues to expand, and more K-12 schools are enrolling

students in blended learning courses, which has led to many schools across the U.S.

adopting one-to-one initiatives. Adopting one-to-one technology initiatives has changed

learning environments and improved student achievement (Henderson-Rosser & Sauers,

2017; Holen et al., 2017; Ross, 2020; Zheng et al., 2016). Vu et al. (2019) said

committees usually decide to implement one-to-one technology in schools. These

committees usually consist of a small number of stakeholders who may or may not be

active classroom teachers (Vu et al., 2019). Committee members also decide to adopt

one-to-one initiatives based on cost, device management, durability, and ease of use (Vu

et al., 2019). Vu et al. (2019) said that the dominant factors in terms of choosing devices

for one-to-one initiatives should be usefulness and dependability. Vu et al. reported that

teachers and administrators, in a rural K-12 education setting in midwest United States,

did not receive adequate training in terms of implementing one-to-one initiatives. Also,

some schools have not evaluated one-to-one initiatives determine effects on student learning outcomes in terms of implementation consistency.

Holen et al. (2017) found that the one-to-one initiative has positively impacted high school student learning as well as teachers' willingness to integrate technology and online learning activities in their classroom instruction. Also, Harper and Milman (2016), in a constant-comparative literature review of 46 research articles on one-to-one technology in K-12 classrooms, found that the use of blended learning with one-to-one technology in K-12 classrooms had a positive effect on student achievement in a variety of content areas. Zheng et al. (2016), in a meta-analysis review of 65 articles, also found that students experience significant improvement in their academic achievement in mathematics, English language, science, and writing when engaged in learning with one-to-one technology. Student engagement and enthusiasm also improved, and teacher-student relationships in the blended learning environment (Zheng et al., 2016). The one-to-one initiatives have yielded positive results regarding student engagement and academic achievement. With access to technology tools, teachers can successfully implement blended learning. However, students are engaged in blended learning using various blended learning models.

Blended Learning Models

According to Tang and Chaw (2016), blended learning allows teachers and students to overcome the various limitations of traditional face-to-face learning. Tang and Chaw (2016) suggested that for blended learning to influence student learning effectively, teachers must use the most suitable blended learning model to meet students' learning

needs. Many schools focus on identifying the most effective blended learning model for proving differentiation in their unique traditional learning environment (Truitt & Ku, 2018). Some popular blended learning models are the rotational model, flex model, self-blend model, and enriched-virtual model (Sharma & Garg, 2016; Tucker, 2012) (Figure 2). Other models include the face-to-face driver model and the online driver model (Kudryashova et al., 2016; Tucker, 2012).

Figure 2

Blended Learning Models
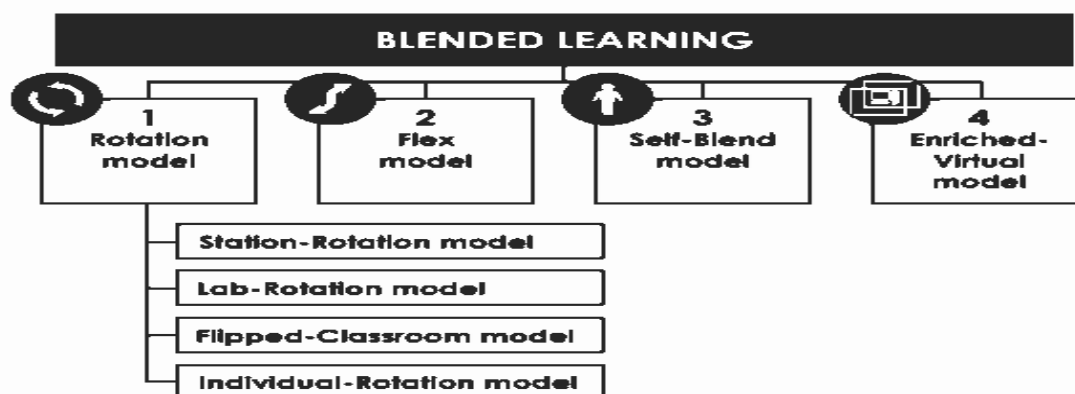
Rotational Model

In the rotation model, students receive both face-to-face instruction and online learning (Crawford & Jenkins, 2017; Kudryashova et al., 2016; Tucker, 2012). Students can rotate between face-to-face and online interaction (Kudryashova et al., 2016). The rotational model includes various versions, such as station-rotation, lab-rotation, flipped-classroom, and individual rotation (Sharma & Garg, 2016). According to Crawford and Jenkins (2017) and Truitt and Ku (2018), with the station rotation model, teachers divide

students into groups of three or four and guide them through a series of learning stations that include at least one technology-based learning station. Also, each group of students rotates through all stations (Crawford & Jenkins, 2017). Truitt and Ku (2018) found that the station-rotation model increases students learning opportunities by providing them with various learning opportunities.

The lab-rotation model is like the station-rotation model as students rotate through different stations in groups (Truitt & Ku, 2018). However, with the lab-rotation model, one of the rotations involves student rotation to an actual computer lab for online learning instructional activities (Truitt & Ku, 2018). Unlike the station rotation model, the lab-rotation model allows students to rotate to different stations on the school campus, rather than stations set up in a specific classroom (Crawford & Jenkins, 2017; Staker & Horn, 2012). On the other hand, the flipped classroom model allows students to receive instruction that they usually receive in the classroom at home online while completing activities that they would typically complete at home, in the classroom. According to Staker and Horn (2012), the flipped classroom model provides students with control over time, place, pace, and path for receiving online content and instruction. The other rotation model, the individual rotation model, allows individual students to rotate to scheduled stations within the class, including an online learning station. However, students only rotate to the stations listed on their specific curriculum paths (Crawford & Jenkins, 2017).

Flex-Model

With the flex-model, the teacher delivers classroom instruction and instructional materials using mostly technology (Kudryashova et al., 2016; Tucker, 2012).

Kudryashova et al. (2016), in a paper examining the theoretical and methodical background of blended learning, stated that in the flex model, teachers play the role of facilitator or coordinator as they guide students through difficult material in the electronic environment. According to Tucker (2012), using the flex model, teachers can engage students in face-to-face tutorial sessions or small group instructions, but students complete most of the instructional activities online. The flex-model allows for flexibility. Students can join small groups or teacher-guided activities based on what suits their learning needs at that time (Truitt & Ku, 2018). Further, the flex-model also allows educators more time to provide students with needed one-to-one attention (Crawford & Jenkins, 2017).

Self-Blend Model

According to Kudryashova et al. (2016), the self-blend model allows students who are highly motivated to pursue other courses online. Students take online courses to supplement their traditional school course requirements (Staker & Horn, 2012; Tucker, 2012). However, the online course that students choose can be through their institution or another institution (Staker & Horn, 2012).

Enriched-Virtual Model

According to Staker and Horn (2012), many enriched-virtual models were once fully online schools before adopting blended learning programs. With the enriched virtual model, students choose to engage in learning with online learning programs and face-to-face learning (Staker & Horn, 2012). For example, they can attend face-to-face classes

for one course or a part of a course, then engage in online learning for other courses or the other half of a course (Crawford & Jenkins, 2017; Staker & Horn, 2012).

Face-to-Face Driver Model

According to Kudryashova et al. (2016), with the face-to-face driver, the teacher delivers instruction covering most of the syllabus using face-to-face instruction. However, teachers use online resources to aid or supplement instruction (Kudryashova et al., 2016). The face-to-face driver blended learning model is currently evolving, allowing teachers to engage students in online discussions, activities, and projects using Web 2.0 technologies (Tucker, 2012).

Online-Driver Model

The online driver model allows students to engage in learning using mainly the online format (Kudryashova et al., 2016; Tucker, 2012). However, according to Kudryashova et al. (2016), students also receive instructional guidance, both face-to-face and online. The online-driver model is like the flex-model in that the teacher plays the role of facilitator or coordinator as they guide students through difficult material (Kudryashova et al., 2016).

Regardless of the blended learning model employed, students are engaged in learning using both face-to-face and online. The difference in the models is the magnitude of instruction offered face-to-face versus online. Further, blended learning integration may result in significant improvement in students learning and teachers' instructional strategies.

Benefits of Blended Learning

According to Kihoza et al. (2016), the use of information communication technology (ICT) in classroom instruction can improve teaching and learning quality and effectiveness. In a mixed-methods study, Kihoza et al. (2016) compared teacher pedagogy and student learning in four secondary schools, two that adopted blended learning with adequate technology infrastructures, and two that used traditional learning with limited technology infrastructure. Kihoza et al. (2016) found that teachers with adequate technology tools for blended learning implementation experienced improved pedagogy and high student learning outcomes. In a mixed-methods study, Kihoza et al. (2016) compared teacher pedagogy and student learning in four secondary schools, two that adopted blended learning with adequate technology infrastructures, and two that used traditional learning with limited technology infrastructure. Kihoza et al. (2016) found that teachers with adequate technology tools for blended learning implementation experienced improved pedagogy and high student learning outcomes. In a quantitative study consisting of 64 students from two different classes, Irawan et al. (2017) found that the use of blended learning in high school classrooms resulted in a significant improvement in students' learning ability as the majority of students engaged in blended learning instruction gained significantly higher scores on the random assignment multiple-choice test. In a quantitative survey of 102 teachers, researchers found that mobile learning in a primary school blended learning classroom provided students with a new way to learn and improve student interest and engagement in learning (Domingo & Garganté, 2016). Furthermore, according to Hong et al. (2016), the integration of game-based learning in a

traditional learning classroom to facilitate blended learning increased elementary school students' motivation. Whiteside et al. (2016), in a qualitative study using a single exploratory design, also found that using blended learning in high school classrooms helps students develop inquiry and relationship skills. Blended learning also allows students to feel ready for college (Whiteside et al., 2016). Widyahastuti et al. (2017) found that students engaged in blended learning with Edmodo, a social network site that enables teachers to assign content, instructional activities, and assessments to students, were more interested and motivated to learn, submit classwork, and complete assessments.

In a quantitative study on teacher's perception of the flipped classroom, Gough et al. (2017) found that flipped classrooms allow for variations in instructional techniques, active learning, higher-order thinking, and an increase in teacher-student interactions. Gough et al. (2017) stated that flipping the classroom allows teachers to move direct instruction outside of the classroom, providing more time and opportunities to engage students in active learning. Consequently, teachers perceived the flipped classroom model most beneficial to students who are frequently absent from school or struggling with their learning as recorded lectures are readily available (Gough et al., 2017). Further, Pulham and Graham (2018) found in a literature review on online and blended learning that online learning in a blended learning classroom provides teachers with multiple assessment strategies and increases students' accountability for class participation.

Furthermore, in a mixed-methods study examining preservice teachers' perception of additional instruction in a blended learning biology class, results showed a

significant difference in the academic achievement of students who received additional instruction using blended learning (Olpak & Ates, 2018). Further, in a qualitative study on mathematics in-service teachers' perception of Moodle as a blended tool, teachers perceived Moodle as beneficial in promoting social, cognitive, and teacher presence, teachers also perceived Moodle as an excellent blended learning tool for motivating and gaining students interest in the course content (Ndlovu & Mostert, 2018).

Personalized Learning

According to Pulham and Graham (2018), personalized learning is one of the most frequently referenced competencies of blended learning. In 2016, the U.S. Department of Education in the National Education Technology Plan requested the use of personalized learning experiences and technology to transform America's Education System (Basham et al., 2016; National Education Technology Plan, 2016). However, Basham et al. (2016) stated that "there is limited known application of personalized learning in the education system, especially in K-12 education" (p.126). Using technology in classroom instruction to facilitate personalized learning placed both pedagogical and procedural burdens on teachers who have to make vital instructional decisions (Basham et al., 2016). Findings also suggested that while technology tools support personalized learning, the personalized learning environment requires more than technology. For example, student self-regulation needed to implement personalized learning successfully can develop through explicit instruction and support (Basham et al., 2016). Therefore, as Blaine (2019) suggested, blended learning in a secondary school

setting provides students with the structure they need to develop self-regulatory strategies for controlling their learning.

According to Basham et al. (2016), personalized learning focuses mainly on individual learner growth. Blaine (2019), in qualitative content analysis, found that blended learning provides students with independence and increases their control, which encourages them to develop critical thinking skills as they construct meaning and understanding. Also, blended learning increases learners' flexibility, allowing them to control their learning path and pace their learning (Boelens et al., 2017). Studies also found that students, both with or without disabilities, experience success academically while engaged in personalized learning in a blended learning environment (Basham et al., 2016).

Student Engagement and Motivation

According to Bernstein and Mosenson (2018), motivation and engagement are critical to students' academic success as it promotes interest and enjoyment in the learning process. Arcos et al. (2016), in a global quantitative survey of 600 educators across the United States, found that teachers perceived student engagement and involvement in the learning process as the most significant benefit of blended learning. In a traditional classroom environment, most teachers understand how to motivate and engage students in learning (Bernstein & Mosenson, 2018). However, some teachers find it challenging to motivate and engage students in an online learning environment (Bernstein & Mosenson, 2018). Bernstein and Mosenson (2018) suggested that teachers can use learning management systems (LMS) in a blended learning environment to

increase student engagement and motivate them to learn. For example, LMS such as Moodle, Blackboard, Schoology, and Edmodo motivate students to engage in the learning process (Bernstein & Mosenson, 2018). They provide simple and easy-to-use platforms for navigating course content and materials (Bernstein & Mosenson, 2018).

Furthermore, the use of technology in the classroom facilitates higher-order thinking and increases student engagement and motivation (Dey & Bandyopadhyay, 2019; Henderson-Rosser & Sauers, 2017). In a mixed-method study investigating student engagement and motivation in a blended learning environment facilitated by mobile learning, Alioon and Delialioğlu (2019) found that mobile learning effectively improved student engagement as students collaborated and interacted with their peers. Also, in an exploratory qualitative study, Ding et al. (2018) found that students engaged in blended learning with gamification experience high cognitive, behavioral, and emotional engagement as they engage in online discussions with their peers. Buckley and Doyle (2016) also found that students develop intrinsic motivation and increased academic performance when engaged in learning using gamification in a blended learning environment.

Blended Learning and Academic Achievement

In a study conducted with 18 teachers in a large suburban high school in the Midwestern region of the United States, over 70 percent of teachers suggested that students had a more significant increase in academic achievement in a blended learning classroom than in a traditional face-to-face class (Whiteside et al., 2016). Also, compared to students in a traditional learning environment, high school students exposed to blended

learning exhibited greater improved learning outcomes (Irawan et al., 2017). In a

quantitative study conducted in a middle school math class, students engaged in blended

learning outperformed other students in a traditional face-to-face learning environment on

the state Measure of Academic Progress (MAP) assessment (Fazal & Bryant, 2019). In

contrast, the same students were outperformed by their peers in a traditional face-to-face

learning environment on the State of Texas Assessment of Academic Readiness

(STAAR) assessment (Fazal & Bryant, 2019). Fazal and Bryant (2019) recommended

that it would be beneficial for schools to implement a station-rotation blended learning

model in mathematics classes to help students who need additional academic help.

According to research findings in action research, there was progress in teaching

using blended learning technologies such as the learning management system (LMS)

Edmodo, as students, summative grades were higher than the minimum requirement of

completeness (Tanduklangi et al., 2019). In a quantitative study, Ceylan and Elitok Kesici

(2017) found that middle school students receiving instruction in a blended learning

classroom were more successful academically than their peers who received face-to-face

instruction based on their results on the Academic Achievement Test. Researchers found

that mobile learning, which allows learners to engage in learning on digital devices, also

improves students' motivation and academic performance in an English language course

(Dey & Bandyopadhyay, 2019; Huang et al., 2016).

Differentiation of Instruction

According to Arcos et al. (2016), over 70 percent of teachers believed that

technology integration increased their teaching methods by providing them with various

other teaching strategies and tools. Fazal and Bryant (2019) and Simsek and Can (2020) suggested that effective use of technology tools for blended learning can facilitate differentiation of instruction to meet diverse learners' learning needs. Therefore, teachers can use differentiated instruction to provide students with various ways to interact with content and gain knowledge based on their interests and academic skills (Brodersen & Melluzzo, 2017). For example, teachers can use online programs to provide students with instruction that is adaptable to their learning pace (Fazal & Bryant, 2019). Brodersen and Melluzzo (2017) suggested teachers can facilitate blended learning using computer programs that use adaptive programs for the online component to allow teachers to monitor students' progress and differentiate instruction based on students' learning needs. Students can also pace their learning and complete learning activities at their own pace (Brodersen & Melluzzo, 2017). Brodersen and Melluzzo (2017) found a significant increase in positive teacher-student relationships and student learning outcomes in blended learning classrooms that offered differentiated instruction. However, teachers' beliefs about technology integration can adversely affect teachers' implement technology tools for differentiation (Simsek & Can, 2020).

Reducing High School Dropout Rates

High schools across the United States are implementing blended learning to provide students with online credit recovery to minimize dropout rates (Noble et al., 2017). According to Noble et al. (2017), in the 2014-2015 school year, 42 percent of U.S. high schools offered blended-model online credit recovery programs. However, to date, there are limited studies that present data on how much face-to-face instruction students

receive and on the certification of teachers who facilitate instruction in these online credit recovery programs (Noble et al., 2017). Nevertheless, Noble et al. (2017) found that schools that engaged students in blended-model online credit recovery programs experienced higher graduation rates. Güzer and Caner (2014) also suggested that blended learning has significantly reduced the drop-out rates of at-risk high schools. Also, there is a significant difference in the drop-out rate of high school students with and without disabilities, where students with disabilities experience a higher drop-out rate (Sublett & Chang, 2019). However, Sublett and Chang (2019) suggested that online learning in a blended learning environment significantly reduced the drop-out rate of high school students with disabilities, thus increasing graduation rates.

In sum, blended learning is beneficial in improving the quality of teaching and learning. As the previous discussion of the literature indicated, students engaged in blended learning are more interested and motivated to learn as they can take ownership of their learning. Students engaged in blended learning instruction experience a significant increase in academic achievement. Further, blended learning provides teachers with a variety of teaching strategies and multiple assessment strategies. However, many teachers and students cannot benefit from blended learning as they face various challenges or barriers to blended learning integration.

Barriers to Blended Learning

According to Simsek and Can (2020), technology integration in classroom instruction should consider students' learning needs, resource availability, instructional needs, technology design, and technical support and guidance for teachers as they

implement the technology. In a qualitative exploratory study, Zehra and Bilwani (2016) found that technology integration is affected by many factors, including lack of training, administrative support, teachers' confidence, and perception of the value of using technology in classroom instruction. Kihoza et al. (2016) also found that teacher's attitudes and perceptions, lack of availability, and accessibility of technology resources are barriers to technology integration in classroom instruction. Also, the low usage of Information and Communication Technologies (ICT) among secondary school teachers to facilitate blended settings coincides with teachers perceived ease of use, training or the lack thereof, and attitudes towards technology integration (Kihoza et al., 2016). Nikolopoulou and Gialamas (2016) surveyed 119 high school teachers in a quantitative study, found that lack of funding, access to the internet, large class sizes, teachers' confidence, and teachers' pedagogical training were barriers to technology integration in classroom instruction. Culbertson (2018) also found that though teacher belief and perception impact blended learning implementation in classroom instruction. However, other factors influencing the use of blended learning also exist, such as students' and teachers' computer literacy skills, students writing skills, lack of access to technology and the internet, and lack of ongoing professional development (Culbertson, 2018).

Availability and Accessibility of Resources

According to Cheok et al. (2017), having the materials needed to support technology integration is essential for blended learning. Teachers, especially those in low-income schools, struggle to implement technology in classroom instruction due to limited access to digital technology (Makki et al., 2018). Also, Tondeur et al. (2017), in a

qualitative study on the relationships between teachers' beliefs and technology uses, found that internet access and support from information technology personnel have impacted teachers' beliefs and perceptions of blended learning implementation. Rasmitadila et al. (2020) cited a lack of resources such as internet access as barriers to blended learning. According to Rasmitadila et al., the internet facilities and infrastructures were incapable of accommodating online capacity and internet speed to facilitate blended learning instruction successfully.

Teachers' Technology Literacy and Competencies

Several studies indicated that teacher's technology literacy and competencies were barriers to implementing the online component of blended learning (Brown, 2016; Lightner & Lightner-Laws, 2016; Pilgrim et al., 2018; Rasheed et al., 2020). Luo et al. (2017), in a mixed-methods study, found that though teachers have the task of implementing blended learning, some teachers do not possess the appropriate skill set needed for effective blended learning integration as they did not receive enough training. Maycock et al. (2018), Lightner and Lightner-Laws (2016), and Rasheed et al. (2020) also found that some teachers find it challenging to create instructional content using online learning management systems due to a lack of experiences and technology competencies. According to Boelens et al. (2017), in a blended learning environment, teachers find it challenging to incorporate flexibility, facilitate interaction and student learning processes, and foster a climate conducive to effective teaching and learning. Hence, many practitioners struggle to implement blended learning in their classroom instruction (Boelens et al., 2017).

Moreover, educators face challenges integrating technology tools in education, such as resistance to change due to technology integration (Al-Hunaiyyan et al., 2018; Brown, 2016; Rasheed et al., 2020). Some teachers are not technology literate; thus, they find it difficult to proficiently operate instructional technology tools (Leo & Puzio, 2016; Rasheed et al., 2020). Some teachers are not technology literate, causing them to find it difficult to proficiently operate instructional technology tools (Leo & Puzio, 2016; Rasheed et al., 2020). Further, the ability to monitor students learning behaviors and habits are also considered another barrier to blended learning as some teachers find it difficult to identify at-risk students in a timely manner so that they can provide interventions for student success (Hong et al., 2016; Huang et al., 2016; Lu et al., 2018).

Professional Development and Support

Rasheed et al. (2020) suggested that blended learning's successful implementation requires teachers to possess technology competencies and pedagogical support. Also, the lack of training and motivation support in technology integration has resulted in teachers' repulsiveness and unwillingness to implement blended learning in their classroom instruction (Medina, 2018; Rasheed et al., 2020). Kihoza et al. (2016) also found that training and support in technology integration are critical to successfully implementing blended learning. Teachers who receive professional development in technology integration develop a positive perception and attitude and are more prepared to implement technology in their classroom instruction (Archambault et al., 2016; González-Sanmamed et al., 2017; Hsu, 2017). However, Greene and Hale (2017) suggested that professional development on integrating technology with face-to-face

instruction effectively should be seen as a paradigm shift, rather than mere technology training.

Archambault et al. (2016) stated that though some teachers may have received technology training, the type of training and how much training was received varies, posing challenges for technology integration in classroom instruction. After surveying 427 student teachers enrolled in teacher education across America, Archambault et al. (2016) found that 4.1% of them received online field experience, which is inadequate in building the skills to implement the only component of blended learning successfully. Lack of adequate technology integration training is also a cause for teachers lacking confidence in implementing blended learning (Hsu, 2017).

According to Tondeur et al. (2017), school policy statements, mentor initiatives, and good informational technology infrastructures are critical for supporting technology integration in the school systems. In contrast, Porter and Graham (2016), in a quantitative survey of 226 participants, found that 28 percent of participants did not rely on institutional support and infrastructure as the basis of implementing technology in their classroom instruction. Also, Gil-Flores et al. (2017), in a quantitative multilevel logistical regression study, found that though teachers received an adequate supply of technology resources and infrastructure, there was still a low level of technology integration. Teacher's interest and self-efficacy regarding technology integration also influenced the low usage of information technology resources (Gil-Flores et al., 2017). Therefore, they suggested that researchers conduct further research to determine what factors influence teachers to use or integrate technology.

Nevertheless, Edannur and Marie (2017) emphasized the importance of administrator support for successfully implementing blended learning technology, particularly by providing adequate professional development and information technology resources. Vongkulluksn et al. (2018) and Claro et al. (2017) postulated that administrator support positively impacts teachers' perception of technology integration by emphasizing its value and usefulness in improving students learning outcomes. Claro et al. (2017), in a quantitative survey of 242 schools, found a significant relationship between teachers' perception of technology integration and administrators' support. Cheok et al. (2017) also suggested that a lack of support impacted teachers' negative perceptions of technology integration, thus posing a barrier to blended learning implementation.

Teachers' Perceptions and Technology Integration

Teacher perception of technology use is a significant predictor of technology integration in classroom instruction (Archambault et al., 2016; Gough et al., 2017; Qasem & Viswanathappa, 2016). Edannur and Marie (2017) suggested that teachers' perceptions of innovation are vital to implementing classroom innovations. Teachers' perceptions and attitudes towards adopting technology influence their decision to adopt or accept technology for classroom instruction (Qasem & Viswanathappa, 2016). However, teachers' personal beliefs about the technology's usefulness or effectiveness impact their perceptions about technology integration in a blended learning environment (Lightner & Lightner-Laws, 2016; Qasem & Viswanathappa, 2016). Therefore, for the successful implementation of blended learning, teachers must have a positive attitude towards the

blended learning process and a positive approach to change (Lalima & Dangwal, 2017).

However, teachers believed that for blended learning to be effective, the technology must

be well managed, and the learning materials must address the differences in students'

learning styles (Ndlovu & Mostert, 2018).

Mustafina (2016) suggested that secondary school teachers have a positive

attitude towards technology integration as they believe that technology tools allow

students to engage in distant learning and visualize materials using 3D programs.

Mustafina (2016), in a mixed-methods study, found that even though teachers had a

positive attitude towards technology integration, they were not frequently integrating

technology in their classroom instruction. Also, teachers' level of self-confidence and

information and communication technology (ICT) knowledge were factors affecting

teacher acceptance of technology use for blended learning and their attitudes toward ICT

(Mustafina, 2016). Further, teachers attitude towards technology has had a significant

relationship with student motivation in their subject area (Mustafina, 2016).

According to Vongkulluksn et al. (2018) and Scherer et al. (2019), teachers'

perceptions and beliefs affect classroom technology integration for blended learning. In a

qualitative study exploring factors contributing to K-12 teachers' decision to implement

Web 2.0 technologies, Archambault et al. (2016) found that teachers did not implement

Web 2. 0 technologies in their classrooms as they believed it would interfere with

established classroom routines. Teachers also believed that they would not be able to

manage and control the learning environment effectively. Further, teachers' perception of

technology implementation being too difficult also contributes to them rejecting the

technology, thus failing to implement blended learning (Nikolopoulou & Gialamas, 2016). In a quantitative study examining teachers' perception of mobile learning using handheld devices, Osakwe et al. (2017) found that teachers' perceptions of technology's usefulness significantly impact technology integration.

Future of Blended Learning

According to Zheng et al. (2016), one-to-one laptop programs and blended learning will continue to expand in K-12 education due to a reduction in the cost of technology hardware and software and increased wireless access, digitally literate teachers, and technology-oriented students and parents. Also, educational technology software will become more sophisticated, and the need for computers for student assessment will increase, causing the expansion of blended learning in K-12 schools (Zheng et al., 2016). Therefore, Halverson et al. (2017) postulated that the percentage of students receiving blended learning instruction would increase in the future, allowing blended learning to become a predominant model for classroom instruction. As blended learning continues to increase in K-12 education, teachers must become aware of the goals and benefits of blended learning (Parks et al., 2016; Whiteside et al., 2016). Also, it is important to address the barriers of blended learning to ensure success (Riel et al., 2016; Whiteside et al., 2016).

Furthermore, Greene and Hale (2017) found that there is a need for professional development that focuses on an in-depth reconceptualization of pedagogy in online and blended learning for teachers to effectively integrate technology in classroom instruction. Therefore, Whiteside et al. (2016) and Parks et al. (2016) suggested that researchers

examine professional development in blended learning. Also, the National Education Technology Plan (NETP) and the International Association for K-12 Online Learning (iNACOL) are advocating for teacher professional development that will enable teachers to implement blended learning successfully (Shand & Farrelly, 2018; Thomas, 2016). Additionally, based on teachers' beliefs and perceptions, Culbertson (2018) made recommendations that would impact teachers' use of blended learning in a more effective manner. As such, Culbertson (2018) recommended researchers conduct further studies on teachers' perspectives of blended learning courses compared to students' computer skills and methods used by teachers to increase student engagement, motivation, and collaboration as they implement blended learning.

Summary and Conclusions

Blended learning is rapidly expanding in K-12 education, giving rise to an abundance of learning opportunities. The use of blended learning in high school classrooms is beneficial to students as researchers report increases in student engagement and motivation to learn motivation (Carver, 2016; Dey & Bandyopadhyay, 2019; Henderson-Rosser & Sauers, 2017). Also, with blended learning, teachers can differentiate instruction to meet students' learning needs. Moreover, with the online component of blended learning, students can work at their own pace, anywhere, and anytime. Consequently, students engaged in blended learning experiences improved learning outcomes. High school students who are at risk of failure can persist through high school with the help of online credit recovery programs, thus reducing the high school drop-out rates.

Teachers' perceptions of blended learning and technology integration, along with lack of availability, accessibility of technology resources, and professional development, are highly influential in their decision to implement blended learning consistently. According to Makki et al. (2018), teachers, especially those in low-income schools, struggle to implement technology in classroom instruction due to a lack of access to digital technology. Likewise, a lack of resources such as internet access is a barrier to blended learning (Rasmitadila et al., 2020). Several studies also indicated that teachers' technology literacy and competencies were barriers to implementing blended learning (Brown, 2016; Lightner & Lightner-Laws, 2016; Pilgrim et al., 2018; Rasheed et al., 2020). Further, teacher perception of technology use is a significant predictor of technology integration in classroom instruction (Archambault et al., 2016; Gough et al., 2017; Qasem & Viswanathappa, 2016).

The technology acceptance model served as the conceptual framework for this study. The tenets of the technology acceptance model (TAM) help predict teachers' technology acceptance and adoption (Hsiao & Yang, 2011; Tarhini et al., 2017). The percentage of students receiving blended learning instruction will increase in the future, allowing blended learning to become a predominant classroom instruction model. This study will provide administrators and teachers with foundations for implementing blended learning to improve student learning. More so, teachers will be able to identify and develop new blended learning strategies and improve the use of online technologies in the class to maximize the benefits of blended learning.

Chapter 3 includes various components of the study, including the research design and rationale, my role, participant selection, instrumentation, procedures for data collection and analysis, trustworthiness, and ethical procedures.

Chapter 3: Research Method

The purpose of this basic qualitative study was to explore teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. The problem is that despite strong evidence of the benefits and use of blended learning, many classroom teachers at the high school level still fail to consistently implement the online component of blended learning to maximize these benefits. I employed a basic qualitative research design in this study.

In Chapter 3, I discuss the research design and rationale and the role of the researcher. I also discuss the methodology, including participant selection, instrumentation, procedures for data collection, and analysis. Also discussed in this chapter are trustworthiness and ethical procedures.

Research Design and Rationale

Using the basic qualitative approach in this study, I explored teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. A basic qualitative approach was most suitable for addressing the problem presented in this study. Using a basic qualitative approach helped in terms of describing and analyzing core content teachers' views of blended learning implementation based on their experiences as they implement blended learning in their classroom instruction. In this study, I sought to answer the following research questions:

RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?

RQ2: How do core content teachers implement blended learning in their classrooms?

RQ3: What are teachers' perceptions of challenges related to implementing blended learning?

According to Creswell and Creswell (2017), a qualitative approach helps researchers explore and understand how individuals make meaning of phenomena. Ravitch and Carl (2016) said qualitative research allows researchers to understand how people see, view, approach, and experience the world and make meaning of their experiences and different phenomena. Ravitch and Carl described qualitative research as descriptive and analytic, where researchers seek to understand, describe, and analyze processes, meanings, and understandings people have as they experience the world. Hence, qualitative research involves asking questions, collecting data in participants' settings, inductive data analysis using particular to general themes, and interpreting data to derive meaning (Creswell & Creswell, 2017).

Unlike the qualitative approach, researchers use quantitative research to collect and analyze numerical data (Drew et al., 2008; Goertzen, 2017). Researchers use the quantitative approach to measure, understand, and generalize about a phenomenon (Drew et al., 2008). According to Goertzen (2017), quantitative findings reveal behaviors and trends but do not explain how people feel or think. In this study, I explored teachers' perceptions of blended learning and how they feel about blended learning implementation. Since this study's results were not measurable or quantifiable, a

quantitative approach was not suitable for this study. Since I explored teachers'

perceptions in this study, a qualitative approach was most suitable.

There are several approaches to qualitative research.The case study design

involves studying a single case or multiple cases using various data sources to explore

real-life events (Ravitch & Carl, 2016). Time and place limit the case study as it is a

specific, complex, and functioning thing (Creswell & Creswell, 2017; Ravitch & Carl,

2016). A case study design requires multiple data sources, including direct observations,

interviews, and documents. In this study, I employed interviews as the only data source.

Therefore, the case study design was not appropriate for this study.

Ethnography involves exploring cultures through immersion and participant

observations (Ravitch & Carl, 2016). I would need to use an in-person field study to

effectively collect ethnographic data. Since the focus was on teachers' perceptions of

blended learning, an in-person field study was not required, making ethnography

inappropriate for this study. The grounded theory design involves developing a theory

from data using multiple data collection sources (Creswell & Creswell, 2017). Grounded

theory was not suitable for this study as the data that I collected was not aimed at

developing a theory or theoretical ideas.

Phenomenological research involves describing individuals' lived experiences

involving a phenomenon (Creswell & Creswell, 2017; Ravitch & Carl, 2016).

Individuals' perceptions form the basis for data collected about the phenomenon.

However, unlike the basic qualitative approach, the phenomenological approach does not

allow the researcher to uncover processes, teaching techniques, and strategies (Merriam,

2009). Therefore, the phenomenological approach was not suitable for this study since it involved how teachers implement blended learning. narrative research involves describing individuals' stories based on their experiences over an extended period (Creswell & Creswell, 2017; Ravitch & Carl, 2016). The research usually focuses on one or two individuals' stories or experiences when conducting narrative research. Data are interpreted in chronological order (Pavlenko, 2002; Ravitch & Carl, 2016). Since data were collected from 12 participants during a short period via interviews, the narrative approach was not suitable for this study.

Role of the Researcher

According to Ravitch and Carl (2016), the researcher's role in qualitative research is central to the research process, as the researcher is the primary instrument for data collection. My role in the school district is a middle school science teacher. The high school under study is located in a small school district, and some high school teachers might be familiar with me. However, I have little to no interactions with these teachers, thus reducing the likelihood of conflicts of interest. I am not responsible for how teachers implement blended learning or online learning tools they use in their classroom instruction. I am also not responsible for the selection and training of teachers in terms of how to implement blended learning.

Researchers' values are critical to the study's design, implementation, and findings. It is vital to understand subjectivity, as this impacts the rigor and validity of the study (Ravitch & Carl, 2016). Therefore, during the data collecting process, I considered subjectivity in terms of data presented and analyzed material from multiple perspectives.

I used my auditory, visual, gustatory, and olfactory senses during the data collection process and note-taking to document data. Further, I reviewed data from interview transcripts to clarify material and checked for accuracy while being aware of any bias that might affect my data interpretation. Also, to reduce any possible researcher bias, I had participants review study results for accurate interpretation.

My role in this study was researcher. As the researcher, my primary role was to collect and analyze data to answer the research questions. Therefore, drawing from phenomenological and symbolic interactions, I focused on developing an understanding of how study participants made sense of their lives and how they interpreted their experiences. In my role as a researcher, I also played the role of an interviewer. Rubin and Rubin (2012) suggested that the interviewer interview participants who are knowledgeable or have experience with the topic. As the interviewer, my role was to interact with participants by engaging them in discussions and asking pertinent questions about the topic to understand their perceptions better. Also, as I listened to participants, I record conversations.

Methodology

I used a basic qualitative research approach in this study. Using open-ended semi-structured interviews, I collected data for analysis to address the research problem. According to Merriam and Tisdell (2016), researchers use basic qualitative research to understand meanings individuals construct as they experience a phenomenon. This section includes a discussion of methods for selecting participants, instrumentation, data collection, and data analysis.

Participant Selection

Participants were selected using purposeful sampling. According to Creswell and Clark (2017), purposeful sampling allows researchers to select participants based on their experience with the phenomenon they are exploring. The study is limited to high school core content teachers with at least one year of experience implementing blended learning. Also, since there is only one high school with 32 core content teachers in the district, I selected a minimum of 10 teachers to participate. Saunders et al. (2018) suggested that at least 10 interviews are adequate to achieve saturation. Dworkin (2012) defined saturation as the point at which data collection stops yielding new data. Since a minimum of 10 is acceptable for ensuring saturation, the plan was to recruit more than the minimum number of participants to address attrition. Therefore, the aim was to recruit a maximum of 32 participants.

An email was sent to all core content teachers within the high school, detailing the purpose, nature, and criteria of the study and inviting them to participate if they met the criteria. Informed consent form were attached to emails (see Appendix B). Based on responses to the first email, I invited 12 interested participants who indicated they had at least 1 year of experience using blended learning to participate in a 45-60 minute semi-structured telephone interview. Also, to ensure participation and saturation, I stayed in contact with participants, scheduled interviews at dates and times that were convenient for them, and conducted telephone interviews as scheduled.

Instrumentation

Interviews served as the data collection tool for this study. According to Ravitch and Carl (2016), interviews provide "deep, rich, individualized, and contextual data that are centrally important to qualitative research" (p. 146). The interviewer can also gain focused insights into participants' real-life experiences and how they make sense of and construct meaning or ideas about a phenomenon (Ravitch & Carl, 2016). Semi-structured interviews facilitated the collection of qualitative data regarding teachers' PU, PEU and implementation of blended learning technology. According to Azungah (2018), "semi-structured interviews are associated with the ontological and epistemological stance that reality is socially constructed and interpreted in line with the worldviews of participants" (p. 385). Interview questions helped in terms of gaining insights into core content teachers' lived experiences and perceptions regarding blended learning implementation in classroom instruction. Interviews consisted of 12 open-ended interview questions (see Appendix A) that align with research questions.

I created an interview protocol containing the interview questions (see Appendix C). According to Castillo-Montoya (2016), a reliable interview protocol improves the quality of data collected during interviews. I created an interview protocol because there was no suitable published interview protocol to effectively collect data needed to provide insight into this study. Also, I created interview questions that were easily understandable and lead to data required to address research questions. Interview questions were also aligned with research questions to ensure validity of data.

A panel of five experts reviewed the interview guide to assess the appropriateness and quality of the research questions and determine validity (see Appendix D). I chose these experts based on their qualifications, expertise, and experience in doctoral research, specifically qualitative research and blended learning. I emailed each expert a copy of the interview guide and a survey/interview validation rubric. Experts reviewed interview questions to ensure clarity, validity, and relationships to the stated problem and framework. Kallio et al. (2016) said the assessment of an interview guide by external specialists allows the researcher to gain valuable guidance regarding the relevance of interview questions, correct wording, and arrangement the questions. Also, assessment by external specialists helps the researcher determine appropriateness and completeness of questions in terms of fulfilling the aims of the study (Kallio et al., 2016). Therefore, I made adjustments to questions based on feedback from the panel of experts.

I conducted a field test of the interview guide with nonparticipants who have experience implementing blended learning in their classroom to establish interview questions' sufficiency in terms of answering the research questions. Participants for the field test were coworkers and friends at the middle school where I teach. According to Kallio et al. (2016), field testing provides researchers with valuable information about the relevance of questions and whether they elicit data that answer research questions. I recorded and transcribed interviews using the Otter application software. Additionally, I wrote notes during interviews with the aid of an interview guide. Rubin and Rubin (2012) suggested that interview guides include main interview questions as well as possible followup questions. Based on the participants' feedback during the field test, interview

questions did not need any adjustments. They were worded correctly in a logical sequence, and suitable for answering research questions.

Procedures for Recruitment, Participation, and Data Collection

I sent a letter to the district's superintendent to request permission to research at a high school in a South Carolina school district (Appendix F). The letter detailed the purpose of the study and how it may benefit the district and education system. Once I received permission from the superintendent and Walden University Internal Review Board (IRB), I started the data collection process. Data were collected using telephone interviews. Since I work in the school district, I had access to participants' email addresses through the district's employee contact database. However, the school's principal provided me with a list of core content teachers.

The first 12 participants who expressed interest in participating in interviews and completed the informed consent form were interviewed (see Appendix B). The consent form included my contact information (cell number and email address) so participants could contact me if they had questions before scheduled interviews (see Appendix B). Further, participants received an email notification that their participation in the study is voluntary, and there was no compensation. Also, I notified participants that I was recording interviews. Qualified participants who expressed interest in participating in interviews received an email or phone call to schedule the telephone interview. Using the Otter application software, I recorded and transcribed telephone interviews. Otter is application software that allows users to record and transcribe conversations. This software saves conversations which can then be exported and analyzed.

With the telephone interviews, the participant is more flexible with time for participating in the study and can participate from the comfort of their home (Gill & Baillie, 2018 Additionally, participants performed member-checking by reviewing interview transcripts for accuracy and making any necessary corrections (Merriam & Tisdell, 2016). I gave participants one week to complete this review process. Once the participant reviewed, clarified, and confirmed the data in the interview transcript, the participant was exited from the study as no follow-up interviews were necessary.

Data Analysis Plan

Data analysis in qualitative research is an iterative process (Merriam & Tisdell, 2016). I conducted a thematic analysis to derive meaning from the data collected. According to Castleberry and Nolen (2018), thematic analysis is a descriptive method that allows the researcher to identify, analyze, and report distinctive patterns or themes that arise from the data. I utilized Yin's five steps for analyzing qualitative data for this thematic analysis: compile, disassemble, reassemble, interpret, and conclude (Yin, 2015).

Step One: Compile

I compiled the data into a usable form by transcribing interviews, collating responses, and gathering supporting data from the literature that added to the analysis . Therefore, I recorded and transcribed interviews using the Otter application software. Then, I engaged in member-checking by allowing participants to review the interview transcripts for accuracy. Based on participants' suggestions, I edited the transcripts to reflect accurate data.

Step Two: Disassemble

I disassembled the data to create meaningful groups of ideas by coding to identify distinctive features, such as patterns, the similarity in features, the order of presentation, context, or meaning. Saldaña (2016) defined a code as a "word or phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (p.4). By coding, I converted raw data into useable data by identifying the similarities and differences in the data (Castleberry & Nolen, 2018). Therefore, I used the first cycle In Vivo and descriptive coding to identify recurring words or codes that summarized the primary topic within the transcript. Then, I used the second cycle axial coding to form connections between the codes identified during the first cycle coding phase to create categories (Saldaña, 2016). I also developed a chart listing the different codes (Appendix E).

Step Three: Reassemble

I reassembled the codes and categories identified to form themes. According to Castleberry and Nolen (2018), themes represent the patterned responses or meaning within the data related to the research questions. I used NVivo qualitative data management software to identify categories and themes that emerged from the interviews.

Step Four: Interpret

From the themes present in the analyzed data, I made analytic conclusions through interpretations (Castleberry & Nolen, 2018; Yin, 2015). However, data interpretation was a continuous process and will be occurring through each stage of the data analysis (Castleberry & Nolen, 2018). According to Yin (2015), the interpretation

should be complete, fair, accurately represent the data, reflect current literature, and

credible. Moreover, the interpretation should include a discussion of the relationships

between themes and answers to the research questions (Castleberry & Nolen, 2018; Yin,

2015).

Step Five: Conclude

I formulated conclusions using the themes derived from the analysis process

(Castleberry & Nolen, 2018; Yin, 2015). According to Castleberry and Nolen (2018),

conclusions respond to the research questions and the purpose of the study. However,

Castleberry and Nolen (2018) suggested that conclusions made in qualitative research are

not generalizable.

Trustworthiness

According to Connelly (2016), trustworthiness in qualitative research depends on

the extent to which the data, interpretations, and methods used are of good quality. Also,

a qualitative study's trustworthiness depends on whether the study is reliable or valid

(King et al., 2018). Connelly (2016) suggested that credibility, dependability,

confirmability, and transferability are criteria used to assess trustworthiness in qualitative

research.

Credibility

In qualitative research, credibility evaluates the truth value or validity

(Hammarberg et al., 2016). A qualitative research study is credible when the findings and

interpretations are plausible to the participants. According to Maxwell (1992), there is

descriptive validity, which refers to the accuracy of the participant's account of the

phenomenon. Also, there is interpretive validity, which refers to the inferences made

from the participants' words or actions in the study. Hence, when assessing credibility,

the researcher seeks to determine if the findings are valid or accurately reflect reality, as

seen by the participants (Hammarberg et al., 2016).

To ensure credibility in this study, I engaged in member-checking to allow

participants to review the interview transcripts for accuracy and make edits based on

participants' suggestions (Merriam & Tisdell, 2016). Merriam and Tisdell (2016)

suggested the data is valuable once it is recognizable to the participants who shared the

data. Therefore, each participant received an emailed copy of the interview transcript on a

shared google doc between the individual participant and the researcher (Candela, 2019).

Participants read through the transcript, check for accuracy, and made comments to

clarify what was said. Participants also completed this review process within one week. I

also examined the data several times to ensure that I accurately interpreted the data or

interviewee responses. I then emailed the initial conclusions to the participants to check

for the accuracy of the interpretation of the data.

Dependability

Dependability refers to whether the data collected remains the same over time for

the duration of the study (Connelly, 2016). Amankwaa (2016) suggested that if the

research findings are consistent and repeatable, then the data is dependable. Therefore, to

ensure dependability in this study, I created a process log to document all activities

during the research process, including participant selection, correspondence with

participants, interview notes, ongoing thoughts, and any other information deemed pertinent.

Confirmability

Confirmability refers to the degree to which the findings presented in the study reflect the data collected from participants and is free of researcher bias (Amankwaa, 2016; Connelly, 2016). To ensure confirmability, I developed an audit trail. Amankwaa (2016) describes an audit trail as a "transparent description of the research steps taken from the start of the research project to the development and reporting of the findings" (p.122). I also used member-checking to allow participants to confirm the data presented in the findings and whether they agreed, disagreed, or had any additions (Merriam & Tisdell, 2016).

Transferability

Transferability refers to the extent to which the study's findings are useful to individuals in another setting Connelly (2016) suggested that the reader must determine if the study's findings apply to their situation. According to Connelly (2016) and Amankwaa (2016), the research must provide readers with location setting and participants present in the study.

<div align="center">

Ethical Procedures

</div>

Ethical issues often arise when conducting qualitative research. According to Ravitch and Carl (2016), some ethical issues to consider when conducting qualitative research are "informed consent and assent, research relationships and boundaries, reciprocity, transparency, and confidentiality" (p.343). Therefore, I sent a letter to the

Superintendent of Schools to request permission to research at the high school in the school district. The letter detailed the purpose of the study and how it will benefit the district and the education system. I also seek the Internal Review Board (IRB) permission before starting the data collection process. Also, issues regarding informed consent, transparency, and confidentiality could have emerged in this study during the data collection process. Since I conducted interviews, I was transparent about what the study entailed and what I will do with the findings. Also, I received the informed consent of the participants (Appendix B). More so, I researched with confidentiality and assured the participants that data shared will be kept confidential and used only for this study.

Rubin and Rubin (2012) suggested that researchers must be explicit in their explanations when dealing with participants and intern information on a personal level to prevent potential negative ramifications. Therefore, I did share participants' names or any descriptors that could identify them, including personal information or the location of the study. Also, I did not disclose the participants' identities in the results or reports coming out of this study. I also used numerical codes in place of names. To ensure confidentiality, I filed paper-based data in a secured filing cabinet and kept it locked with a key. I also stored electronic data on a computer with cloud storage that is protected by passwords. No one, except for myself, will have access to the participant's data or interview transcripts. Also, I will store data from this study protected for five years, as a university requirement, and then destroy it by shredding any paper document and deleting electronic records.

Summary

I used a basic qualitative research design to explore teachers' perceptions of blended learning, how they implement it, and the challenges they have with implementation. As the researcher, my central role was to collect and analyze. Therefore, using purposeful sampling, I will select 12 core content teachers with at least one year of experience implementing blended learning in their classroom instruction to participate. I used semi-structured interviews to collect data for analysis to address the research problem. I aligned the interview questions with the research questions and allowed a team of experts to review the interview questions to ensure the validity of the data. I also field tested the interview guide with non-participants who have experience with implementing blended learning in their classroom to establish the sufficiency of the interview questions for answering the research questions.

 Interviews were done via telephone. Further, I did a thematic analysis to derive meaning from the data collected. The thematic analysis involved compiling the data by transcribing interviews, disassembling the data by coding to identify codes and categories, and reassembling the data to form patterns and themes. Also, I interpreted the data to derive meaning, then formed conclusions by using the data to respond to the research questions. I ensured that I followed ethical procedures in qualitative research using informed consent, transparency, and confidentiality.

Strategies were in place to meet criteria used to assess the trustworthiness in qualitative research, such as credibility, dependability, confirmability, and transferability. To ensure credibility and confirmability in this study, I engaged in member-checking to

allow participants to review the interview transcripts for accuracy and make edits based on participants' suggestions. I also created a process log to document all activities during the research process, including participant selection, correspondence with participants, interview notes, and any other information deemed pertinent to the study to ensure dependability. To ensure transferability, I developed a thick description that includes information about the location setting and participants present in the study. Further, in Chapter 4, I discussed the findings of this study in detail.

Chapter 4: Results

The purpose of this basic qualitative study was to explore teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. A basic qualitative approach was used to describe and analyze core content teachers' views of blended learning implementation based on their experiences as they implement blended learning in their classroom instruction. I used the following research questions to guide this study:

RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?

RQ2: How do core content teachers implement blended learning in their classrooms?

RQ3: What are teachers' perceptions of challenges related to implementing blended learning?

This chapter includes descriptions of the setting, data collection, and data analysis. I also described results in terms of themes and subthemes. Also included in this chapter are evidence of trustworthiness.

Setting

The setting for this study was a high school located in a small rural school district in South Carolina. The school district has a total enrollment of 2490 students. The district has only one high school that serves 9-12 grades and has 735 students enrolled. This high school has a population of 32 core content teachers, of which six teach social studies/history, eight teach mathematics, eight teach science, and 10 teach English

language arts. This small rural school district adopted the one-to-one technology initiative during the 2015-2016 school year, providing each teacher and student with technology devices for teaching and learning. Teachers and students were issued Chromebooks to aid in teaching and learning.

Demographics

I asked participants eight demographic questions about age, years of teaching experience and implementing blended learning, content area, technology training, and grade level that participants teach. Participants' ages ranged from 25 to over 41. Years of teaching experiences ranged from 7 to 45. When asked about their years of experience implementing blended learning, participants' experience ranged from 1 to 10 years. Content area taught by participants also varied. P1, P3, and P6 teach social studies and U.S. history, P2, P8, P10, and P12 teach science, P4, P5, and P9 teach English language arts, and P7 and P11 teach mathematics. Technology training received by participants also varied. Of the 12 participants, 10 stated that they had had some form of technology training through personal development (PD) sessions held within the school district regarding how to use various tools and software for blended learning implementation; one stated they had technology training through a graduate course. P7 had no technology training. However, all teachers teach students ranging from grades 9-12.

Table 1

Demographics for Research Participants

	Core Content	# Years of Teaching	Technology Training	# Years Implementing Blended Learning
P1	Social Studies/US /History	9	Professional Development	5
P2	Science	8	Professional development	6
P3	Social Studies	10	Technology in Education class in Graduate School	3
P4	English Language Arts	25	Professional development	7
P5	English Language Arts and Literature	14	Professional development	10
P6	Social Studies	7	Professional development	6
P7	Mathematics	32	None	10
P8	Science	14	Professional development	1
P9	English Language Arts	22	Professional development	5
P10	Science	45	Professional development	1
P11	Mathematics	45	Professional development	2
P12	Science	11	Professional development	4

Data Collection

For this study, I collected data from high school core content teachers who have had at least 1 year of experience implementing blended learning in their classroom. I collected data using semi-structured telephone interviews. After receiving approval from the host school district and IRB (approval #11-17-20-0511235; see Appendix F), I requested a list of core content teachers from the district's high school principal. Upon receiving the names of 32 teachers, I emailed invitations to 20 potential participants inviting them to participate in this study if they fit criteria detailed in the invitation letter. Ten participants who fit the criteria responded to the invitation with interest in participating in the study. I then sent them the consent form, which they read and signed. One participant responded that though they fit the criteria, they could not participate due to health reasons. To gain more participants, I emailed the remaining 12 teachers invitations to participate in the study, of which two responded. After sending the two potential participants consent forms, they consented to interviews.

I interviewed all 12 participants using telephone interviews between November 23 and December 7, 2020. Interviews lasted between 20 and 30 minutes. At the beginning of each interview, I assured participants of their anonymity and confidentiality. Interviews were recorded and transcribed using Otter application software. At the end of each interview, I replayed interviews, read transcripts to check for errors, and manually made necessary corrections. I then performed member checking by emailing completed interview transcripts to participants to review and check for an accurate representation of

their perspectives. All participants confirmed the accuracy of transcripts as they did not find any errors.

Data Analysis

The research questions that guided this study were about high school core content teachers and their perceptions of the ease and usefulness of blended learning, how they implement blended learning in their classrooms, and perceived challenges related to implementing blended learning. Using open-ended interview questions, I generated answers from participants as they relayed their perceptions, experiences, and knowledge of blended learning implementation. I used Davis' TAM and its tenets PEU and PU to address how they influence user acceptance and intention to use. After conducting interviews, I began the thematic analysis process using Yin's five steps for analyzing qualitative data: compile, disassemble, reassemble, interpret, and conclude.

Step One: Compile

I compiled data by recording and transcribing interviews. I then engaged participants in the member-checking process, which allowed each participant to review interview transcripts for accuracy. After participants completed this process, I collated responses for analysis.

Step Two: Disassemble

I then disassembled data to create meaningful groups of ideas by coding to identify patterns, similarities in features, order of presentation, context, and meaning. I next uploaded the transcript into NVivo software and began the first cycle and descriptive coding to identify recurring words or codes within transcripts. I generated 135 codes,

including codes generated by NVivo and those I identified by hand-coding transcripts (see Appendix E). During the second cycle, I used axial coding. Axial coding involves categorizing coded data. Using second cycle axial coding, I analyzed initial codes that I identified during the first cycle coding phase to identify similarities, patterns, and connections between them. I was able to create 10 categories (see Appendix E).

Step Three: Reassemble

The codes and categories identified were then reassembled to form themes . I constructed a table with research questions, codes, and categories from participant responses to interview questions (see Appendix E). By organizing codes and categories in the table, I was able to have a broad visual representation of data. I then examined codes and categories for similar patterns and meanings relevant within the context of research questions. I also grouped similar codes and categories to form themes that led to answers to research questions. I further examined and analyzed each theme to ensure they supported the research questions and there was enough data to support each theme. I also generated subthemes from some of the emerging themes (see Table 2).

Step Four: Interpret

I was then able to make analytic conclusions by interpreting themes identified in the data. This includes a discussion of the relationships between themes and answers to the research question. The themes ease of navigation and user-friendliness, providing teacher/student feedback, promoting student independence/autonomy, student interest and engagement, and enhanced/extended learning were used to provide answers to RQ1. The themes blended learning, flipped classroom, face-to-face model, and teachers'

perceptions and blended learning were used to answer RQ2. Further, RQ3 was answered using the themes lack of resources, teacher technology competence, and factors enabling successful blended learning implementation.

Step Five: Conclude

I was also able to make conclusions using themes derived from analysis. Based on RQ1, I concluded that participants believed that blended learning tools are easy to use as they are user-friendly, easy to navigate, manageable for all students, and adaptable to all devices. Participants also stated that blended learning is useful for engaging students in the learning process, gaining their prior knowledge and misconceptions, and engaging them via personal learning by providing individual learning activities for remediation or enrichment.

Also, for RQ2, I concluded that most participants implemented blended learning using either the face-to-face or flipped classroom models. Teachers' perceptions of blended learning impact their implementation. Those participants who perceive blended learning as an essential teaching and learning tool implemented blended learning daily in their classroom instruction. For RQ2, I concluded that Internet access and teacher technology competency were the main challenges participants faced when implementing blended learning. Also, support from the school district and colleagues, availability of resources during the one-to-one initiative, and PD were factors that enabled participants to implement blended learning successfully.

There were a few discrepant cases found in the collected data. Some teachers perceived blended learning tools as a distraction for some students. Also, there were

discrepancies in terms of how some teachers implemented blended learning; some only used it for homework assignments, as they preferred face-to-face instruction. I concluded that teachers' perceptions of blended learning tools influences how they implement blended learning and how often they implement blended learning in their classroom instruction.

Results

I organized results presented in this section by research question and themes and subthemes derived from data analysis (see Table 2). I asked participants several questions to explore their perceptions regarding PEU and usefulness of blended learning, how they implement it, and challenges they have with implementation. I used numerical codes to ensure participants' identities remained anonymous.

Table 2

Research Questions, Themes, and Subthemes

Research Questions	Themes	Subthemes
RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?	1. Ease of navigation and user-friendliness	
	2. Providing teacher/student feedback	
	3. Promotes student independence/autonomy	
	4. Student interest and engagement	
	5. Enhance/extend learning	
	6. Individualized/Differentiated instruction	
	7. Factors enabling successful blended learning implementation	*7a) Support* *7b) Professional development/training* *7c) One-to-one initiative*
RQ2: How do core content teachers implement blended learning in their classrooms?	8. Blended learning	
	9. Flipped classroom	
	10. Face-to-face model	
RQ3: What are teachers' perceptions of challenges related to implementing blended learning?	11. Teachers' perceptions and blended learning	
	12. Lack of resources	
	13. Teacher technology competence	

RQ1

Ease of Navigation and User-Friendliness

When asked about the perceived ease of use of blended learning, several participants shared that blended learning was easy to use based on the technology tools. Participants have access to a wide variety of blended learning technology tools such as Chromebooks, online learning software, or learning management systems, such as Edgenuity, Google classroom, and a myriad of other online learning tools (see Appendix E). However, when considering ease of use, participants suggested that Google classroom was by far the easiest to use due to the ease of navigation and user-friendliness. According to P2, "blended learning is easy to implement if you can easily navigate through the technology, and it is user-friendly and manageable for students." P3 stated that blended learning is easy to implement "when the online tools are user-friendly and adaptable to any device." P5, P9, and P12 also shared that blended learning is easy to use if the blended learning tool is user-friendly, easy to navigate, and provides clear instructions.

Providing Teacher/Student Feedback

When asked about the usefulness of blended learning in their classroom instruction, teachers expressed that blended learning provided feedback on students' prior knowledge of subject content. For example, P1 stated that "blended learning tools are useful in gaining students' prior knowledge about the topic, which helps me plan instruction." Participants also indicated that blended learning tools help give them

feedback on student learning. As stated by P2 and P3, "blended learning is useful as it helps teachers get feedback on student learning" using online assessment tools such as Kahoot or Quizziz.

Blended learning is also useful in allowing teachers to provide students with feedback on their progress or learning. According to P5, P6, P7, and P11, teachers can give students quick feedback when implementing blended learning. For example, P11 stated that "I can see in real-time what they are doing and be able to provide immediate feedback or remediation as needed."

Promoting Student Independence/Autonomy

Blended learning is also useful in providing student independence and autonomy. For example, students can engage in learning and complete course readings and assignments at their pace and time. According to P8, "blended learning is useful when the technology tools allow students to work at their own pace. Also, using the learning management system, Google classroom, students can engage in independent learning. For example, P8 stated, "I assign students individualized assignments, which they can complete independently after engaging with video lessons posted in Google Classroom." Also, as stated by P9, "blended learning allows the students to have access to information before coming to class so that they can engage with the content before a lecture." P10 also shared that "by using Google Classroom daily with a prepared agenda, students have access to lesson content and they have independent time when they may work on the assignments online."

Student Interest and Engagement

Blended learning is useful in developing student interest and promoting student engagement. According to P8, "blended learning keeps students engaged, and students find content more interesting." P9 also stated, "I think it allows us to have deeper student engagement in terms of discussion. So, I find it very useful." P5 expressed that "using blended learning technology tools, I can garner student interest and engage them in learning, regardless of how they learn or their developmental level." Further, P12 also shared that "blended learning keeps students engaged, and I can stimulate learning."

Enhanced/Extended Learning

Blended learning is useful in enhancing and extending student learning. According to P2 and P4, "blended learning extends student learning by helping them develop 21st-century skills and connect them to real-world experiences." For example, P4 shared that "students develop creativity, collaboration, and technology skills as they engage in learning and discussions using the various technology tools." Also, P5 proposed that blended learning "helps teachers expand students' learning and takes them outside of the classroom, without having to leave the classroom." According to P5, "Using videos students can see visual representations of stories and places they read about since they cannot travel to these places." P9 also suggested that "blended learning is a powerful tool for increasing rigor and extending student learning."

Individualized/Differentiated Instruction

Participants also perceived blended learning as an effective tool for providing students with individualized or differentiated instruction. P1 stated that 'blended learning allows me to assign reading materials and individualized assignments for students to

complete at their own pace." Also, P5 and P7 shared that using blended learning can meet

the learning needs of all students. For example, P5 stated, "I find that not all my students

are reading at the same level. Therefore, I can differentiate instruction by modifying and

assigning students articles that meet their reading level. So, they are exposed to the same

content, but some articles may have simpler wording." P7 also shared, "my students can

work at their pace to complete assignments. What I do is assign the work in Google

classroom, and students can move from one assignment to the next once they master that

concept." P7 continued to share that "if I find that a student is struggling, then I can

differentiate or remediate by assigning a lower-level assignment or provide further

instruction or explanation."

Factors Enabling Successful Blended Learning Implementation

I asked participants about the factors that enabled them to implement blended

learning successfully. I categorized participant's responses by the three sub-themes,

support, professional development, and one-to-one initiative. I also discussed each sub-

theme in this section.

Support

Participants described the support as assistance received from the school District

and their colleagues. P1 stated, I have full support from my district in that they provide

the resources I need to implement blended learning." P4 shared that "support is the

biggest thing that has helped me successfully implement blended learning. I have the

support I need from the district and my colleagues in terms of helping me troubleshoot

problems that arise with technology." Also, P6 stated, "I think support from the district,

support from my fellow teachers, and support from parents and students has helped me successfully implement blended learning." P8 believes that "success with implementing blended learning comes from having support from the school district. I have what I need, and I can always ask for what I need and get it. That is the best support ever." P9 shared that "support from peers has helped me implement blended learning. Also, P10 stated that "support from other staff members when I need help with a technology is a plus for me as I am not that competent and their support has helped me implement blended learning."

Professional Development/Training

The school district and the school provide technology training for all teachers in weekly personal development sessions. Some participants believe that personal development in technology integration has enabled them to implement blended learning successfully. According to P4, "professional development has also helped with learning these new technologies to implement blended learning in my classroom instruction." P8 shared that "the district-wide technology training and weekly professional developments have helped me with blended learning. Though these weekly professional developments are optional, I attend them to develop my competence." P9 also indicated that "the professional development geared towards technology has been effective in helping me implement blended learning." However, P7 and P9 shared that the technology training is helpful but not substantial. According to P7, "you go to the training, and they present so many apps when you leave you are either still lost or not sure which one even to try."

One-To-One Initiative

Some participants suggested that the Districts' one-to-one technology initiative, where each school provides each teacher and student with Chromebooks, has enabled them to implement blended learning successfully. P1 shared that "because we are one-to-one with technology, teachers and students have the technology resources like the Chromebook to use in and out of class. The district also provides MiFi for students who do not have the internet at home. I believe these things allow me to implement blended learning successfully. According to P5, "a big plus is that students are issued Chromebooks, and MiFis are given to some students to alleviate internet problems." P11 stated it is wonderful that all students have Chromebooks. That is a big plus; the district provides the technology so I can successfully implement blended learning." P12 also shared that "thanks to the district's one-to-one initiative, all students are provided with adequate resources. Each child has a Chromebook and internet access at school."

RQ2

Blended Learning

I asked all participants to define blended learning. P1 and P9 defined blended learning as "the use of asynchronous as well as synchronous teaching and learning." P3 and P4 responded by saying that blended learning is a combination of synchronous and asynchronous assignments at the same time. P5 stated that "my definition of blended learning is being able to use manipulatives here in the classroom, as well as digital technology to enhance the learning process for the students." According to P5, manipulative refers to instructional materials, such as vocabulary cards, word dice, or textbooks. Also, P6 responded by saying, "I would define blended learning as using the

internet, as well as in-person learning.in other words, using in-person and using technology to enhance or to teach."

According to P7, "blended learning is a combination of your traditional and that of your technology put together." P8 described blended learning by stating that it allows the students to engage in learning, part of which is conducted "face to face, and the other part of it, happens virtually online." P10 defined blended learning as "a combination of face-to-face, instruction, with the teacher at a school, mixed with some facilitated learning using online tools and resources." Also, P11 stated that blended learning is "learning blended between face-to-face and internet or technology supported." P12 defines blended learning as "incorporating the different technological tools into your traditional teaching and learning."

Flipped Classroom

I also asked participants to describe how they implement blended learning in their classroom instruction. Based on the responses, some participants implement blended learning using the flipped classroom model. The flipped classroom model allows teachers to assign students lesson content that they can interact with at their pace, using technology, then engage students in interactive activities in the classroom. For example, P1 stated, "I give mapping activities and a video lesson that they can do at their own pace, then in the face-to-face environment I reinforce their learning with short lectures and activities." According to P4, "everything that I do is uploaded into Google Classroom so that students can access video lessons, assignments, and assessments." Also, P10 shared that "by using Google Classroom daily with a prepared agenda, students have

access to lesson content and they have independent time when they may work on the assignments online."

The flipped classroom model also allows teachers to provide students with remediation or reinforcement activities. For example, P8 stated, "I assign individualized assignments, provide access to content with videos, provide clarifications and extension activities in the teacher-led portion of instruction." P9 also responded saying, " I use the flipped classroom method. So, I assign students quick pieces of literature. They may have various activities to do with it, and the activities are to be completed before they get to class. In class, I can directly either place them in groups or have them complete some type of extension activity, and then we can move to assessments." Further, P4 stated students work at their pace online, but I use the face-to-face time to clarify misconceptions, remediation, or to answer student questions."

Face-to-Face Model

Most of the participants implemented blended learning using the face-to-face model. The face-to-face model entails instruction that is done in the classroom using both traditional teaching strategies and technology. P2 responded saying, "I use technology to introduce my lesson, then I give a face-to-face lecture using google slides that contain pictures and videos, then I assign independent assignments online. P3 also shared, "I do a lecture, maybe like 10-15 minutes, and then I might have student either work independently on online assignments like USA test prep or an assignment in google classroom." P5 stated, I give short lectures using PowerPoint presentations embedded with pictures and videos, then assign individualized assignments in the form of Webquest

or online assessments." P6 shared, "I use technology for homework and assessment but deliver my instruction using traditional face-to-face methods." Also, P7 shared that "after a lecture, I use maybe 20-25 minutes for students to use technology and work online on some type of practice." "P11 stated, "I go through the lesson and the examples face-to-face, then I give independent practice using technology with websites like demos."

Teacher Perceptions and Blended Learning

I also asked participants to share their perceptions of blended learning based on their experience with implementation. Most participants perceived blended learning as beneficial in the areas of student engagement and learning. However, some shared that blended learning can be distracting for some students. Nevertheless, P1, P2, P3, P4, P5, P8, P10, P11, P12 indicated that they implement blended learning "every day" while P6, P7, and P9 stated they implement blended learning approximately two or three times per week.

Mathematics Teachers' Perceptions

Participants who taught mathematics, P7 and P11, shared that blended learning is a school requirement. They implement blended learning daily. Both P7 and P11 stated that blended learning is useful for "giving students quickly assessing students understanding" of the lesson content and allows them to "give immediate feedback on student's learning." However, according to P7, "technology cannot replace the teacher so teachers must use blended learning to supplement their teaching by using technology tools to present concepts in a different way to develop the brain of the child." P7 continued to share "when I do use blended learning, I only use the technology for

homework, nothing else." Further, P11 share that " implementing blended learning has been the hardest part of my job, and I have been teaching over 40 years. I have a lot more to learn to be successful with blended learning implementation."

English Language Arts Teachers' Perceptions

Participants shared that using blended learning technology tools allows them to show students pictures and videos of places and events they read about in books. Therefore, P5 proposed that blended learning "helps teachers expand students' learning and takes them outside of the classroom, without having to leave the classroom." Also, P9 suggested that "blended learning is a powerful tool for increasing rigor and extending student learning." Participants also shared that blended learning presents students with other creative ways of presenting their writing pieces. For example, P5 stated that "my students can be creative in how they present their writing as they can use storyboards, add illustrations, and so on. These help them gain 21st-century skills so that they can compete with other students globally when they go off to college or the workforce." P4 also indicated that blended learning is "effective in providing the skills they need in this 21st century." However, P4 also stated that "the use of technology is a distraction for some students. Not all students can focus on the learning as they find other things online to distract themselves."

Science Teachers' Perceptions

Participants shared that blended learning is beneficial for both teachers and students. For example, P2 stated that "blended learning helps students with independent practice using technology, provides ease of relaying information to students, and helps

students stay on task. P8 also stated, "I feel like blended learning is a good thing, but I also think that it is working for some students, and for others, it is not." P12 also shared that "blended learning is good; it has been working for me. Blended learning keeps students engaged, and I can stimulate learning for all students regardless of how they learn or their developmental level." Also, P10 shared that "blended learning can be effective, but there are challenges that make it frustrating to implement."

Social Studies/US History Teachers' Perceptions

Participants suggested that blended learning helps with student engagement and improving student learning. For example, P1 shared that "blended learning is a requirement for student learning as they begin to tune you out after lecturing for too long. So, using technology helps with student engagement." P6 also shared, "two years ago, I found that the Chromebooks were more of a distraction to students than an effective learning tool, but right now it is the only means of engaging our students in the teaching and learning process." Also, P3 stated, "I believe it helps with student learning."

RQ3

Lack of Resources

All participants shared that lack of resources was a challenge preventing them from implementing blended learning, while a few also reported technology competency challenges. When describing lack of resources, most participants referred to internet access and Chromebooks. According to P1, "many kids do not have access to the internet at home. So, it poses a problem when I assign homework online." P2 stated, "for me, the major factors are choice of technology, in that some students refuse the school-issued

Chromebooks, and internet access as some students do not have the internet at home." P3 shared that "access to technology devices is a big issue. Some parents opt out of getting Chromebooks for students. Also, students damage the devices, and the school is unable to repair them fast enough." P3 also stated that "another issue is the internet. The students live in places that do not allow them internet access even though the school issues them a MiFi," which is a wireless router for providing wireless internet.

Other participants also shared internet connectivity and Chromebook issues as factors that impact blended learning in their classroom instruction. For example, P4 stated, "first, lack of connectivity regarding the internet is a problem. Second, students not having their Chromebook as sometimes they leave them at home." P5 also said, "website failures, Chromebook issues, slow internet, and sometimes no internet access are the most pressing factors I can think of that has prevented me from implementing blended learning." P6 suggested that "lack of or poor internet access and lack of student participation" are factors that prevent successful blended learning implementation. P7 also shared that "internet access is a big problem for students." P8 stated, "the internet service is not always reliable for some students, and it is difficult to get some students to participate."

Also, P9 expressed, " I can think of several factors, but the main ones are technology problems as the devices are old and some do not work. Also, some students do not have internet access when they leave school. P10 also indicated that "inoperable devices or device limitations and limited or no internet access are barriers or challenges to blended learning." Also, P11 stated that "poor internet access has been a major

problem when implementing blended learning." P12 also shared that "sometimes we have issues regarding the technology or the software as the district blocks some websites. We also have internet issues. Also, students do not have the appropriate device or the device is not functioning."

Teacher Technology Competence

Some participants cited technology competence as a factor that impacts blended learning implementation in their classroom instruction. P4 stated, "for me, maybe not having a full understanding of how to use a particular app has hindered me from using some online tools for blended learning." P4 continued to share that "the school offers training during our planning periods, but due to my workload, I cannot attend most of them." P5 also said, "I think poor preparation on my part is an issue. I hear about a technology tool they attempt to implement without being fully prepared or competent enough to use it effectively. I might need to attend those training sessions more often." According to P7, "lack of knowledge and skills for using a technology is a big issue." P8 stated that a challenge with blended learning implementation is "adjusting to the new way of doing the teaching and learning using technology. I have to keep learning new technologies so that I can keep up."

Discrepant Cases

Distractions

The majority of participants described the ease and usefulness of blended learning; however, P4 suggested that blended learning technology is not useful when it becomes a distraction to students. P4 also shared that "not all students can focus on the

learning as they find other things online to distract themselves." For example, P4 stated

that "sometimes students get distracted playing games on the Chromebook and do not

complete the assigned task." Also, P6 shared, "two years ago, I found that the

Chromebooks were more of a distraction to students than an effective learning tool."

Human Elements

Some participants indicated that they prefer face-to-face interactions with

students. However, blended learning instruction reduces the amount of time spent

teaching face-to-face. P12 stated that engaging students in blended learning "takes away

the human effect and becomes not useful if students do not engage and participate in the

blended learning activities." Also, P11 shared that "during face-to-face instruction, I can

assess my student but reading facial expressions and body language to determining if

they are confused or understand what I am teaching. I am also able to refocus distracted

students with just one look or proximity control. P11 continued to share that "with

blended learning, it is hard to tell if they are focused when using technology, and you

have to wait for students to submit the assignment to assess their understanding."

Further, P12 stated that, during instruction, blended learning "is used only for

assessments." According to P12, "I use face-to-face interaction and hands-on activities to

drive my content across then use technology for assessment where I may ask students to

create a project in terms of like Google Slides or posters." Further, P7 suggested that

"technology cannot replace the teacher so teachers must use blended learning to

supplement their teaching by using technology tools to present concepts in a different

way to develop the brain of the child." Also, P7 stated, " when I use blended learning, I only use the technology for homework, nothing else."

Evidence of Trustworthiness

Trustworthiness in qualitative research depends on the quality of the data, interpretations, and methods used to collect it (Connelly (2016). King et al. (2018). Also, suggested that the trustworthiness of a qualitative study depends on whether the study is reliable or valid. Connelly (2016) proposed the following criteria for assessing trustworthiness in qualitative research: credibility, dependability, confirmability, and transferability.

Credibility

According to Hammarberg et al. (2016), credibility is equivalent to validity in a qualitative study. To ensure credibility, I engaged participants in member-checking (Merriam & Tisdell, 2016). In the member-checking process, I emailed the interview transcripts to participants. Participants then reviewed the interview transcripts for accuracy, and I corrected any inaccuracy based on the participant's suggestions. For example, P10, after going through the transcript, suggested that I changed the years of teaching experience from 34 to 45 as 34 was incorrect. However, there were no significant changes to any of the transcripts. I also examined the data several times to ensure that I accurately interpreted the data. I then emailed the initial conclusions to participants to check for the accuracy of the data interpretation.

Dependability

The data in a study is dependable if the research findings are consistent and repeatable (Amankwaa, 2016). To ensure dependability in this study, I documented all activities during the research process, including participant selection, correspondence with participants, interview notes, and ongoing thoughts in my research guide. I also ensured that there was alignment between the research questions and the interview questions (Appendix A). Further, I included a detailed analysis of the data collected.

Confirmability

Confirmability refers to the degree to which the findings presented in the study reflect the data collected from participants and is free of researcher bias (Amankwaa, 2016; Connelly, 2016). To ensure confirmability in this study, I provided a detailed description of the research steps taken from the start of the research project to the development and reporting of the findings. I also used member-checking to allow participants to confirm the data presented in the results and whether they agree, disagree, or have any additions (Merriam & Tisdell, 2016). Additionally, I compared the data collected from each interview to cross-validate the response to answering the research questions.

Transferability

To ensure transferability in this study, I provided a vivid description of context, location, and participants without compromising confidentiality in terms of the participants' identity (Amankwaa, 2016; Connelly, 2016). For example, I presented a description of the study setting and context in the 'Background' section of Chapter 1. I

also presented a description of the participants in the 'Settings' and 'Demographic'

sections in Chapter 4.

Summary

The purpose of this basic qualitative study was to explore teachers' perceptions of

ease of use and usefulness of blended learning, how they implement it, and the challenges

they have with implementation. Twelve core content high school teachers from a local

school district in South Carolina participated in a semi-structured telephone interview.

Participants were required to have at least one year of experience implementing blended

learning in their classroom instruction. After each interview, I manually checked the

transcripts for errors. I also conducted member checking by emailing the completed

interview transcripts to participants so that they could review and check that their

perspectives are accurately represented.

The research questions that guided this study asked high school core content

teachers' about their perceptions of the ease and usefulness of blended learning, how they

implement blended learning in their classrooms, and their perceived challenges related to

implementing blended learning. Davis' TAM and its two tenets, perceived ease of use,

perceived usefulness, and how they influence user acceptance and intention to use, served

as a guide for this study. Also, the data analysis was complete using Yin's five steps for

analyzing qualitative data for this thematic analysis: compile, disassemble, reassemble,

interpret, and conclude. I generated 135 codes, then used the codes to create ten

categories during the first cycle coding phase. I then reassembled these categories to form

7 themes.

The results of this study were organized by the research questions and the themes and subthemes derived from the data analysis. For RQ1, participants perceived blended learning to be easy to use in that blended learning tools are easy to navigate and user-friendly. Participants also perceived blended learning as useful for providing teacher/student feedback, promoting student independence/autonomy, student interest and engagement, enhancing/extending student learning. For RQ2, participants share that they implement blended learning using either the flipped classroom or face-to-face model. Based on their experience implementing blended learning, some teachers shared that blended learning is beneficial for student learning, interest, and engagement. However, some teachers perceive blended learning as a distraction for student learning. For RQ3, participants indicated a lack of resources and teacher technology competencies as challenges faced when implementing blended learning. However, Support from the school district and colleagues, personal development, and the District's one-to-one technology initiative have enabled some teachers to implement blended learning successfully.

Also, to ensure trustworthiness in this study, I implemented strategies for credibility, dependability, confirmability, and transferability. For credibility and confirmability, I used member-checking so that participants can review the transcripts for accuracy. Also, for transferability, I provided a vivid description of the context, location, and participants of the study. For dependability, I documented all activities during the research process, including participant selection, correspondence with participants, interview notes, and ongoing thoughts.

Chapter 5 includes interpretations of findings and limitations of the study. I also discuss recommendations and implications. Furthermore, I provide a conclusion for the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this basic qualitative study was to explore teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. According to Creswell and Clark (2017), a basic qualitative method involves effectively exploring a problem, incorporating participants' views, and communicating perceptions of participants. I conducted the study to understand how teachers implement blended learning and their perceptions of blended learning implementation in high school classrooms in a rural school district in South Carolina.

I interviewed 12 core content teachers from a small rural school district South Carolina to form a composite picture of high school teachers' perceptions of blended learning implementation in classroom instruction. I collected data using semi-structured telephone interviews. I analyzed data based on participants' understanding and perceptions of blended learning and how they implement blended learning in their classroom instruction. Consequently, the study provided rich insights into teachers' perceptions concerning factors that prevent or enable the implementation of online learning tools to facilitate blended learning in core content classrooms.

Participants perceived blended learning to be easy to use if the blended learning technology is user-friendly, easy to navigate, manageable for all students, and adaptable to all devices. Regarding usefulness, participants consider blended learning to be useful as they could get feedback regarding student learning and give students quick feedback,

remediation, or enrichment. Participants also believe that blended learning is useful for engaging students in the learning process.

Further, participants implement blended learning using either the flipped classroom or face-to-face model. According to participants, lack of resources such as Chromebooks and Internet access for students and teacher technology competencies hinder the successful implementation of blended learning. However, they can successfully implement blended learning due to the district and their colleagues' support, PD provided by the district and school, and Chromebooks and MiFis provided by the district via one-to-one initiatives.

Interpretation of the Findings

To guide this study, I developed three research questions that would help me understand teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and challenges they have with implementation. The research questions were:

RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?

RQ2: How do core content teachers implement blended learning in their classrooms?

RQ3: What are teachers' perceptions of challenges related to implementing blended learning?

After collecting and analyzing the data, seven themes emerged. The themes were: ease of navigation and user-friendliness, providing teacher/student feedback, promoting

student independence/autonomy, student interest and engagement, enhanced/extended

learning, blended learning, flipped classroom, face-to-face model, Teachers' perceptions

and blended learning, lack of resources, teacher technology competence, and factors

enabling successful blended learning implementation. In this section, I provide an

analysis based on the research questions. Findings from this study confirmed and

extended several findings discussed in the literature review in Chapter 2.

RQ1

After analyzing participants' responses to the interview questions , findings

suggest that participants have access to a wide variety of online tools to facilitate blended

learning implementation. However, they frequently use Google Classroom tools, as this is

the school district'' learning management system. According to Hsiao and Yang (2011),

users' perceptions form the basis of user acceptance. Therefore, PEU influences

individuals' intentions to use or integrate technology (Davis, 1989; Tarhini et al., 2017).

Participants shared that Google Classroom was easy to use due to its ease of

navigation and user-friendliness. Participants also said that Google classroom was

manageable for all students and adaptable to all devices. Participants' perceptions of the

ease of use of blended learning corresponds with findings in the professional literature.

Blended learning tools such as learning management systems and Google classroom, are

simple and easy-to-use platforms for navigating course content and materials. Findings

from the data also suggested that if teachers believe blended learning is useful and easy to

use, they are more likely to implement blended learning in their classroom instruction.

Perceived usefulness also influences individuals' intentions to use or integrate technology (Davis, 1989; Tarhini et al., 2017). Personal beliefs determine teachers' perceptions of technology integration in a blended learning environment in terms of its usefulness or effectiveness (Lightner & Lightner-Laws, 2016; Qasem & Viswanathappa, 2016). Participants consider blended learning to be useful in providing teacher/student feedback. According to participants, blended learning allows them to gain regarding on students' prior knowledge or misconceptions in order to plan their instruction to meet students learning needs. Knowing what students already know about a topic before instruction helps teachers effectively plan instruction to meet students' learning needs (Qian & Lehman, 2017).

Participants also indicated that blended learning helps give teachers feedback regarding student learning. According to Elmahdi et al. (2018), technology tools improve teachers' ability to assess students' learning during blended learning instruction. Teachers are also able to provide students with immediate feedback regarding their learning during instruction. Providing immediate feedback during instruction is crucial to the teaching and learning process and has been known to improve student learning (Elmahdi et al., 2018).

Participants also suggested that blended learning is useful in promoting student independence/autonomy. According to participants, using blended learning can lead to independent activities as student engage in personal learning, allowing them to work at their pace. Also, participants shared that blended learning is useful for time management as students can interact with course content through assigned video lessons and activities

before coming to class. Independent/personalized learning is one of the most documented benefits of blended learning. Blaine (2019) said blended learning provides students with independence and increases their control, which encourages them to develop critical thinking skills as they construct meaning and understanding. Also, blended learning increases learners' flexibility, allowing them to control their learning path and pace their learning (Boelens et al., 2017).

Blended learning is also useful for promoting student interest and engagement. Participants shared that blended learning is useful for engaging students in the learning process as they can engage them in discussions for a deeper understanding of course content. Participants also indicated that by getting students interested and engaged in the learning process, they could stimulate learning. Blended learning enhances student interest and engagement. According to Arcos et al. (2016), student engagement and involvement in the learning process is the most significant benefit of blended learning. Blended learning promotes student interest and engagement in lesson content (Ndlovu & Mostert, 2018; Zheng et al, 2016). Bernstein and Mosenson (2018) said using learning management systems (LMS) in a blended learning environment increases student engagement and motivates them to learn. LMS such as Google Classroom engages students in the learning process as it provides simple and easy-to-use platforms for navigating course content and materials .

The findings suggest that enhancing and extending student learning is also part of PU of blended learning. Participants shared that blended learning enhances student learning by extending their learning beyond the classroom without leaving the classroom.

Students can interact with videos when learning about places they cannot physically reach. Students can also develop 21st century skills such as creativity, collaboration, and technology skills as they engage in learning and discussions using various technology tools. Moreover, high school students exposed to blended learning exhibited greater improved learning outcomes (Irawan et al., 2017). Fazal and Bryant (2019) said blended learning enhances student learning, thus improving student achievement.

Participants perceived blended learning as useful for providing students with individualized or differentiated instruction.Blended learning tools can facilitate differentiation of instruction to meet diverse learners' learning needs (Fazal & Bryant, 2019; Simsek & Can, 2020). Therefore, teachers can use differentiated instruction to provide students with various ways to interact with content and gain knowledge based on their interests and academic skills (Brodersen & Melluzzo, 2017). Participants shared that they can use online programs to provide students with instruction that is adaptable to their learning pace. Similarly, participants shared that they provide content materials and assignments adapted for learners' reading levels. Participants also provide students with assignments that they can complete at their pace. Brodersen and Melluzzo (2017) said blended learning allows students to pace their learning and complete learning activities at their own pace. Teachers' perceptions of the usefulness of blended learning influences their decision to implement blended learning in their classroom . Participants who perceived blended learning as easy to use and useful for promoting student interest and engagement implemented blended learning daily in their classroom. However,

participants who perceive blended learning as a distraction for students only implemented blended learning 2 or fewer days per week.

Participants also shared factors that enabled them to implement blended learning successfully. All participants shared that support significantly affected their success with blended learning implementation. According to participants, the school district supports them by providing resources and tools needed for blended learning implementation. Participants also shared that they receive support from their colleagues who help with troubleshooting technology problems and teaching them how to use some online learning tools. Kihoza et al. (2016) said technology training and support are critical for successfully implementing blended learning. Claro et al. (2017) said school administrators' support significantly impacted teachers' perceptions of technology integration. Cheok et al. (2017) said teachers' negative perceptions of technology integration stem from a lack of support.

Participants believe that PD is also a factor for the successful implementation of blended learning. Participants shared that district-wide technology training and weekly PD geared towards technology integration helped them implement blended learning as they learned about new technologies and how to use them. teachers who receive PD technology integration develop positive perceptions and attitudes towards blended learning as they are more equipped withskills needed for implementation (Archambault et al., 2016; González-Sanmamed et al., 2017; Hsu, 2017).

Another factor impacting the successful implementation of blended learning as perceived by participants is the district's one-to-one initiative. Participants said since they

teach one-to-one, the school district provides teachers and students with technology resources such as Chromebooks and MiFis to use in and out of class. Participants shared that the one-to-one initiative allows them to successfully implement blended learning because teachers and students have the tools they need. Holen et al. (2017) said the one-to-one initiative has positively impacted high school teachers' willingness to integrate technology and online learning activities in their classroom. Harper and Milman (2016) said blended learning with one-to-one technology in K-12 classrooms had a positive effect on student achievement in a variety of content areas.

RQ2

After analyzing participants' responses to interview questions relating to RQ2, findings suggest that some participants implement blended learning using the flipped classroom model. Some participants shared that they provide access to content with videos or Google slide presentations uploaded to the Google Classroom LMS. Participants also stated that they use face-to-face instructional sessions to provide students with clarifications, assessments, and extension activities. The flipped classroom model allows students to receive instruction that they usually receive in the classroom at home online while completing activities they would typically complete at home in the classroom (Crawford & Jenkins, 2017; Staker & Horn, 2012). Participants also shared that they assign individualized assignments for students to complete at their pace. Staker and Horn (2012) suggested that with the flipped classroom blended learning model, students can work at their pace as they can choose the time, place, pace, and path for receiving online content and instruction.

Findings also suggested that some participants implement blended learning using the face-to-face driver model. According to Kudryashova et al. (2016), the face-to-face driver model allows teachers to deliver instruction covering most of the syllabus using face-to-face instruction. Some participants deliver lesson content face-to-face by using lectures and then assigning independent assignments using online technology tools. Some participants also teach content face-to-face and assign homework and assessments using online technology. According to Tucker (2012), the face-to-face driver blended learning model is currently evolving, allowing teachers to engage students in online discussions, activities, and projects using Web 2.0 technologies.

How teachers feel about technology use in classroom instruction is a significant predictor of blended learning implementation (Archambault et al., 2016; Gough et al., 2017; Qasem & Viswanathappa, 2016). Teachers' perceptions as a predictor of blended learning implementation was also evident in this study. Participants perceived blended learning as an essential teaching and learning tool. All participants implement blended learning during classroom instruction, with the majority implementing it every day. However, the findings suggested that participants who did not implement blended learning every day stated that the technology was sometimes a distraction for students. Archambault et al. (2016), in a survey of 427 K-12 teachers across the United States found that some teachers did not implement Web 2. 0 technologies in their classrooms as they believed that it would interfere with established classroom routines. Teachers' perceptions of technology influence whether they use the technology during classroom instruction (Davis, 1989; Hsiao & Yang, 2011; Tarhini et al., 2017).

According to participants, especially mathematics teachers, blended learning is an effective tool for facilitating formative assessment and giving students immediate feedback. Fazal and Bryant (2019) also found that mathematics teachers can provide quick assessment, reinforcement learning activities, and remediation when using blended learning in their classroom instruction. Some mathematics teachers only use blended learning tools for assigning homework assignments. Some mathematics teachers only use blended learning tools for assigning homework assignments. However, some math teachers demonstrate the steps for calculating math problems face-to-face and allow students to practice at their pace and preferred time with assigned online math problems to improve student learning. Similarly, Zheng et al. (2016) found that blended learning instruction in mathematics class improved students' academic achievement.

Participants who taught English shared that blended learning is a powerful tool for increasing rigor, extending student learning, and developing 21st-century skills, such as collaboration and creativity. Whiteside et al. (2016) also found that blended learning instruction students develop inquiry and relationship skills. Further, Greene and Hale (2017) corroborated that blended learning helps students develop 21st-century critical thinking and collaboration skills.

Science and social studies teachers shared that blended learning keeps students engaged and improves learning. Similarliy, Arcos et al. (2016) and Bernstein and Mosenson (2018) found that teachers perceived student engagement and motivation as the most significant benefit of blended learning. Using technology in classroom instruction increases student engagement and motivation (Dey & Bandyopadhyay, 2019;

Henderson-Rosser & Sauers, 2017). Buckley and Doyle (2016) also found that students develop intrinsic motivation when engaged in blended learning instruction. Further, Whiteside et al. (2016) found that blended learning increases social, cognitive, and teacher presence, motivates students, stimulates interest, and keeps them engaged in the learning process.

According to the findings, participants stated that blended learning allows students to work at their pace on independent assignments. Therefore, students can engage in personalized learning. Participants shared that blended learning helps students with independent practice using technology and extends student learning. Participants also suggested that blended learning can stimulate learning for all students regardless of how they learn or their developmental level by assigning learning activities that meet their learning needs. The findings are corroborated in the literature by Boelens et al. (2017), who suggested that blended learning increases learners' flexibility, allowing them to control their learning path and pace their learning. Basham et al. (2016) also found that students, both with or without disabilities, experience success academically while engaged in personalized learning in a blended learning environment.

RQ3

After analyzing participants' responses to the interview questions relating to this research question, the findings suggest that lack of resources and teacher technology competence were challenges faced by teachers when they attempt to implement blended learning. The high school, which is the setting for this study, is located in a small rural community, and many homes do not have internet access. In some areas, as stated by

participants, the school-issued MiFi does not work. According to Echazarra and Radinger (2019), though there have been improvements over the years, internet access is a significant challenge to students' education in rural school districts. Also, Rasmitadila et al. (2020) cited a lack of internet access barriers as barriers to blended learning. Moreover, Tondeur et al. (2017) found that internet access has impacted teachers' beliefs and perceptions of blended learning implementation.

Participants also shared that their technology competencies are a challenge for them when implementing blended learning. For example, P5 and P7, who are English and mathematics teachers, feel that it is challenging to implement a blended learning technology without being fully prepared or competent enough to use it effectively. Several studies indicated that teacher's technology literacy and competencies were barriers to implementing the online component of blended learning (Brown, 2016; Lightner & Lightner-Laws, 2016; Pilgrim et al., 2018; Rasheed et al., 2020). Luo et al. (2017) and Maycock et al. (2018) also found that some teachers do not possess the appropriate skill set needed for effective blended learning implementation, causing them to have difficulty creating instructional content. However, the district and school where this study took place offer weekly technology training, but they are not mandatory. Archambault et al. (2016) found that though some teachers may have received technology training, the type of training and how much training was received varies, posing challenges for technology integration in classroom instruction. Therefore, participants suggested that the technology training should be substantive and specific.

Also, teachers should attend professional development training to learn more about the different technology tools for blended learning.

Limitations of the Study

The study was limited to a particular geographic location in South Carolina. Specifically, the study was limited to a high school located in a small rural school district in South Carolina. Since the study was limited to a small school district, the findings may not reflect teachers' perceptions in large school districts or school districts located in urban areas. Also, the study was limited to a small sample of participants who teach core content subjects such as Mathematics, Science, Social Sciences (History and Social Studies), and English Language Arts. Since the sample size is small, consisting of 12 participants, the findings in the study may not be generalizable to the entire population. There was also a limitation to participant's involvement. Due to the Covid-19 pandemic, participants could only participate in telephone interviews, limiting their time during the interview. A face-to-face interview may have supported more elaboration to garner more data.

Also, the data collected is limited to the participants' responses during the interview's timeframe as I did not conduct any follow-up interviews. The researcher bias limitations were minimal as the researcher eliminated personal subjectivities and assumptions about the phenomenon by promoting objectivity. According to Mertler (2016), researchers can record non-judgemental and bias-free results when they think objectively. Also, I followed the planned strategies and procedures for credibility,

dependability, transferability, and confirmability to minimize the limitations to the trustworthiness and ensure validity.

Recommendations

In this study, I focused on teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and the challenges they have with implementation. It was evident in the findings that most teachers find blended learning easy to use and useful in their classroom instruction. However, their perception of ease of use and usefulness was based solely on the technology tools they use to implement blended learning. Some teachers also perceived tools, like the Chromebook, as a distraction for students. Also, teachers perceive the learning management system (LMS), Google classroom as easy to use, but they do not experience other LMS. Therefore, I recommend that a comparative study using different learning management systems (LMS), such as Google Classroom, Edmodo, and Schoology, as an independent variable, could inform the research community on perceived usefulness and ease of use.

Participants also had different strategies for implementing blended learning. However, most teachers implemented blended learning using the flipped classroom model or the face-to-face driver model. With the availability of several other blended learning models, I recommend a comparative study using different blended learning models to determine which model is most effective for blended learning implementation in high school classroom instruction.

Furthermore, this study was limited to high school core content teachers. Therefore, data collected is limited to the experiences of the core content teachers at the

high school. However, the school district has a one-to-one technology initiative where all students are engaged in technology-aided learning from Pre-K through to 12th grade. I would recommend that further studies garner teacher's perception of blended learning at all levels from Pre-K through to 12th grade.

Additionally, most participants perceived internet access and teacher technology competencies as the most significant challenges when implementing blended learning. However, the school district provides teachers and students with Chromebooks, MiFis, and other technology resources. The school district and the school also provide optional professional development for teachers who need additional technology training. I recommend that this training become mandatory in the school district. I also recommend that professional development training for technology is specific to the needs of teachers. Also, in small rural districts where the internet is not accessible to all students, I recommend that schools find other methods to allow internet access to students.

Implications

This study will provide ideas about how teachers use technology for instruction and the challenges involved. Findings in the study suggest that teachers may improve student learning by using blended learning technology tools to individualize instruction, stimulate interest, and increase engagement. Thus, contributing to positive social change in learning as more teachers adopting blended learning technologies in their classroom instruction can improve student academic achievement. Data collected from this study will also provide meaningful information to help break down barriers preventing blended learning in classroom instruction. Therefore, teachers might receive more training and

professional development on implementing blended learning and troubleshoot technology problems for successful implementation. Also, this study will inform school districts that they must keep the technology tools and internet access they provide functioning to increase social change in learning.

Conclusion

In this study, I explored teachers' perceptions of ease of use and usefulness of blended learning, how they implement it, and their challenges with implementation. Using a basic qualitative method, 12 core content high school teachers from a small rural school district in South Carolina participated in a semi-structured telephone interview. Participant's responses were analyzed using Yin's (2015) five steps for thematic analysis.

The findings suggest that participants have access to a wide variety of online tools to facilitate blended learning implementation. Participants indicated that these blended learning tools are easy to use. They are user-friendly, easy to navigate, manageable for all students, and adaptable to all devices, especially the learning management system, Google classroom. The findings confirmed that teachers consider blended learning useful in providing feedback on student learning, giving students quick feedback, remediation, enrichment, and engaging students in the learning process. The findings suggest that some participants implement blended learning using either the flipped classroom model or the face-to-face driver model. For example, using the flipped classroom model, participants provide course content online for students to utilize at their pace while providing students with clarifications, assessment, and extension activities during the

face-to-face instructional sessions. Participants also deliver most of the lesson content using lectures, then assign independent assignments using online technology tools.

The findings from this study confirmed that teachers' perceptions impact blended learning implementation (Archambault et al., 2016; Gough et al., 2017; Qasem & Viswanathappa, 2016). According to the findings, teachers' perception of blended learning impacts how often they implement blended learning. For example, participants perceive blended learning as an essential teaching and learning tool. Therefore, all participants implement blended learning in the classroom instruction, with the majority implementing it every day. However, the teachers who see technology tools as a distractor for students only implemented blended learning 2 to 3 days a week.

Findings suggest that blended learning promotes personalized learning as participants can allow students to work independently on remediation or enrichment activities using technology. Additionally, the findings confirmed that teacher technology competence and lack of resources (internet access and technology tools) are barriers to blended learning implementation (Makki et al., 2018; Rasmitadila et al., 2020). However, some factors enable successful blended learning. These factors include support from the school district and colleagues, the one-to-one initiative where the school provides teachers and students with Chromebooks, and ongoing professional development, which provides teachers with technology training.

In conclusion, teachers' perception of the ease of use and usefulness impacts their implementation of blended learning in their daily instruction. Most teachers perceive blended learning technology as easy to use and useful. Therefore, most teachers are

implementing blended learning. The most popular method of implementation among participants is the flipped classroom of the face-to-face model. However, some teachers face challenges when implementing blended learning. For example, some students do not have access to the internet once they leave school. Also, some teachers do not possess the skills and competencies needed to implement blended learning successfully. Nevertheless, teachers receive support from the school district and peers. They have the district's technology tools, and they receive technology training, enabling them to implement blended learning successfully. Teachers who can successfully implement blended learning in their classroom instructions can maximize the benefits.

References

Abdullah, F., & Ward, R. (2016). Developing a general extended technology acceptance

    model for e-Learning (GETAMEL) by analyzing commonly used external factors.

    Computers in Human Behavior, 56, 238-256.

    https://doi.org/10.1016/j.chb.2015.11.036

Al-Hunaiyyan, A., Alhajri, R. A., & Al-Sharhan, S. (2018). Perceptions and challenges of

    mobile learning in Kuwait. *Journal of King Saud University - Computer and

    Information Sciences*, *30*(2), 279-289.

    https://doi.org/10.1016/j.jksuci.2016.12.001

Alioon, Y., & Delialioğlu, Ö. (2019). The effect of authentic m-learning activities on

    student engagement and motivation. *British Journal of Educational Technology*,

    50(2), 655. https://doi.org/10.1111/bjet.12559

Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research.

    Journal of Cultural Diversity, *23*(3), 121-127.

    https://ezp.waldenulibrary.org/login?url=https://search.ebscohost.com/login.aspx?

    direct=true&db=rzh&AN=118362617&site=eds-live&scope=site

Archambault, L., Kennedy, K., Shelton, C., Dalal, M., McAllister, L., & Huyett, S.

    (2016). Incremental progress: Re-examining field experiences in K-12 online

    learning contexts in the United States. *Journal of Online Learning Research*, *2*(3),

    303-326. https://www.learntechlib.org/primary/p/174116/

Arcos, B. D., Farrow, R., Pitt, R., Weller, M., & McAndrew, P. (2016). *Personalizing

    learning through adaptation: Evidence from a global survey of K-12 teachers'*

perceptions of their use of open educational resources.

https://www.semanticscholar.org/paper/Personalising-learning-through-adaptation%3A-Evidence-Arcos-Farrow/07b73846451b67ae30aa01c05cda314639d4caeb

Azungah, T. (2018). Qualitative research: Deductive and inductive approaches to data analysis. *Qualitative Research Journal, 18*(4), 383-400.

http://dx.doi.org.ezp.waldenulibrary.org/10.1108/QRJ-D-18-00035

Basham, J. D., Hall, T. E., Carter, R. A., & Stahl, W. M. (2016). An operationalized understanding of personalized learning. *Journal of Special Education Technology*, *31*(3), 126-136. https://doi.org/10.1177/0162643416660835

Bernstein, E., & Mosenson, A. (2018). Motivating and engaging learners in the middle level online environment. *The Online Classroom: Resources for Effective Middle Level Virtual Education*, 167.

https://books.google.com/books?hl=en&lr=&id=xSKADwAAQBAJ&oi=fnd&pg=PA167&dq=Motivating+and+engaging+learners+in+the+middle+level+online+environment.&ots=Ec7oYGKR3X&sig=ThYofgvtjK6-nvmgDmybQtvpWbY#v=onepage&q=Motivating%20and%20engaging%20learners%20in%20the%20middle%20level%20online%20environment.&f=false

Bingham, A. J. (2016). Drowning digitally? How disequilibrium shapes practice in a blended learning charter school. *Teachers College Record, 118*(1).

https://www.tcrecord.org/Content.asp?ContentId=18219

Blaine, A. (2019). *Interaction and presence in the virtual classroom: An analysis of the perceptions of students and teachers in online and blended Advanced Placement courses*. https://www-sciencedirect-com.ezp.waldenulibrary.org/science/article/pii/S0360131519300041?via%3Dihub

Boelens, R., De Wever, B., & Voet, M. (2017). Four key challenges to the design of blended learning: A systematic literature review. *Educational Research Review*, *22*, 1–18. https://doi.org/10.1016/j.edurev.2017.06.001

Brodersen, R. M., & Melluzzo, D. (2017). Summary of research on online and blended learning programs that offer differentiated learning options. REL 2017-228. In *Regional Educational Laboratory Central*. Regional Educational Laboratory Central. https://eric.ed.gov/?id=ED572935

Brown, M. G. (2016). Blended instructional practice: A review of the empirical literature on instructors' adoption and use of online tools in face-to-face teaching. *The Internet and Higher Education, 31*, 1–10. https://doi.org/10.1016/j.iheduc.2016.05.001

Buckley, P., & Doyle, E. (2016). Gamification and student motivation. *Interactive Learning Environments*, *24*(6), 1162–1175. https://doi.org/10.1080/10494820.2014.964263

Burkholder, J., Cox, K. A., & Crawford, L. M. (2016). *The scholar-practitioner's guide to research design.* Laureate Publishing.

Candela, A. G. (2019). Exploring the function of member checking. *The Qualitative Report, 24*(3), 619-628.

https://ezp.waldenulibrary.org/login?qurl=https%3A%2F%2Fsearch.proquest.co
m%2Fdocview%2F2213787326%3Facco

Carver, L. (2016). *Teacher perception of barriers and benefits in k-12 technology usage*.
https://files.eric.ed.gov/fulltext/EJ1086185.pdf

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol
refinement framework. *The Qualitative Report, 21*(5), 811-830. https://search-
proquest-com.ezp.waldenulibrary.org/docview/1806967398?accountid=14872

Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it
as easy as it sounds? *Currents in Pharmacy Teaching and Learning, 10*(6), 807–
815. https://doi.org/10.1016/j.cptl.2018.03.019

Ceylan, V. K., & Elitok Kesici, A. (2017). Effect of blended learning to academic
achievement. *Journal of Human Sciences*, *14*(1), 308-320. https://www.j-
humansciences.com/ojs/index.php/IJHS/article/view/4141

Cheok, M. L., Wong, S. L., & Ayub, A. F. (2017). *Teachers' perceptions of e-learning in
Malaysian secondary schools*. https://files.eric.ed.gov/fulltext/EJ1142390.pdf

Claro, M., Nussbaum, M., López, X., & Contardo, V. (2017). Differences in views of
school principals and teachers regarding technology integration. *Journal of
Educational Technology & Society*, 20(3), 42–53. JSTOR.
https://www.jstor.org/stable/26196118

Connelly, L. M. (2016). Understanding research. trustworthiness in qualitative research.
MEDSURG Nursing, *25*(6), 435–436.

https://ezp.waldenulibrary.org/login?url=https://search.ebscohost.com/login.aspx?
direct=true&db=rzh&AN=120221607&site=eds-live&scope=site

Crawford, R., & Jenkins, L. (2017). Blended learning and team teaching: Adapting

pedagogy in response to the changing digital tertiary environment. *Australasian*

Journal of Educational Technology, *33*(2), 51–72. https://eds-b-ebscohost-

com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?vid=2&sid=a9b68688-

5c5e-4e66-8e4a-6b05405cbb45%40pdc-v-sessmgr02

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods*

research. SAGE Publications.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and*

mixed methods approaches. Sage Publications.

Crompton, H., Burke, D., & Gregory, K. H. (2017). The use of mobile learning in PK-12

education: A systematic review. *Computers & Education, 110*, 51–63.

https://doi.org/10.1016/j.compedu.2017.03.013

Culbertson, P. A. (2018). *High school blended learning courses: Teacher beliefs,*

perceptions of experiences, and recommendations

http://search.proquest.com/central/docview/2033117553/abstract/52471D696F744

856PQ/1

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of

information technology. *Management Information Systems Quarterly*, *13*(3), 319–

340. https://doi.org/10.2307/249008

Dey, P., & Bandyopadhyay, S. (2019). Blended learning to improve quality of primary education among underprivileged school children in India. *Education and Information Technologies*, *24*(3), 1995–2016. https://doi.org/10.1007/s10639-018-9832-1

Ding, L., Er, E., & Orey, M. (2018). An exploratory study of student engagement in gamified online discussions. *Computers & Education*, *120*, 213–226. https://doi.org/10.1016/j.compedu.2018.02.007

Domingo, M. G., & Garganté, A. B. (2016). Exploring the use of educational technology in primary education: Teachers' perception of mobile technology learning impacts and applications' use in the classroom. *Computers in Human Behavior* 56:21–28. https://doi.org/10.1016/j.chb.2015.11.023

Drew, C., Hardman, M., & Hosp, J. (2008). *Designing and Conducting Research in Education*. SAGE Publications, Inc. https://doi.org/10.4135/9781483385648

Dworkin, S. L. (2012). Sample size policy for qualitative studies using in-depth interviews. *Archives of Sexual Behavior*, *41*(6), 1319–1320. https://doi.org/10.1007/s10508-012-0016-6

Edannur, S., & Marie, S. M. J. A. (2017). Improving student teachers' perceptions on technology integration using a blended learning programme. *I-Manager's Journal on School Educational Technology; Nagercoil*, *13*(2), 31–42. http://dx.doi.org.ezp.waldenulibrary.org/10.26634/jsch.13.2.13829

Echazarra, A. & Radinger, T. (2019). *Learning in rural school: Insights from PISA, TALIS, and the literature.* https://www.oecd-ilibrary.org/education/learning-in-rural-schools_8b1a5c9-en

Elmahdi, I., Al-Hattami, A., & Fawzi, H. (2018). Using Technology for Formative Assessment to Improve Students' Learning. *Turkish Online Journal of Educational Technology - TOJET*, *17*(2), 182–188. https://eric.ed.gov/?id=EJ1176157

Fazal, M., & Bryant, M. (2019). Blended learning in middle school math: The question of effectiveness. *Journal of Online Learning Research* 5(1):49–64. https://eric.ed.gov/?id=EJ1208816

Gil-Flores, J., Rodríguez-Santero, J., & Torres-Gordillo, J.-J. (2017). Factors that explain the use of ICT in secondary-education classrooms: The role of teacher characteristics and school infrastructure. *Computers in Human Behavior, 68*, 441–449. https://doi.org/10.1016/j.chb.2016.11.057

Gill, P., & Baillie, J. (2018). Interviews and focus groups in qualitative research: An update for the digital age. *British Dental Journal; London, 225*(7), 668–672. http://dx.doi.org.ezp.waldenulibrary.org/10.1038/sj.bdj.2018.815

Goertzen, M. J. (2017). Chapter 3. Introduction to quantitative research and data. *Library Technology Reports, 53*(4), 12–18. https://journals.ala.org/index.php/ltr/article/view/6325/8274

González-Sanmamed, M., Sangrà, A., & Muñoz-Carril, P.-C. (2017). We can, we know how. But do we want to? Teaching attitudes towards ICT based on the level of

technology integration in schools. *Technology, Pedagogy and Education*, *26*(5), 633–647. https://doi.org/10.1080/1475939X.2017.1313775

Gough, E., DeJong, D., Grundmeyer, T., & Baron, M. (2017). K-12 teacher perceptions regarding the flipped classroom model for teaching and learning. *Journal of Educational Technology Systems*, *45*(3), 390–423. https://doi.org/10.1177/0047239516658444

Greene, K., & Hale, W. (2017). The state of 21st century learning in the K-12 world of the United States: Online and blended learning opportunities for American elementary and secondary students. *Journal of Educational Multimedia and Hypermedia*, *26*(2), 131–159. http://www.learntechlib.org/primary/p/174164/

Guetterman, T. (2020). *Qualitative, quantitative, and mixed-methods research sampling strategies*. DOI: 10.1093/OBO/9780199756810-0241

Güzer, B., & Caner, H. (2014). The past, present and future of blended learning: An in-depth analysis of literature. *Procedia - Social and Behavioral Sciences*, *116*, 4596–4603. https://doi.org/10.1016/j.sbspro.2014.01.992

Halverson, L. R., Spring, K. J., Huyett, S., Henrie, C. R., & Graham, C. R. (2017). Blended learning research in higher education and K-12 settings. In M. J. Spector, B. B. Lockee, & M. D. Childress (Eds.), *Learning, design, and technology* (pp. 1–30). https://doi.org/10.1007/978-3-319-17727-4_31-1

Hammarberg, K., Kirkman, M., & de Lacey, S. (2016*). Qualitative research methods: When to use them and how to judge them.* https://academic.oup.com/humrep/article/31/3/498/2384737

Harper, B., & Milman, N. B. (2016). One-to-one technology in K–12 classrooms: A review of the literature from 2004 through 2014. *Journal of Research on Technology in Education, 48*(2), 129–142. https://doi.org/10.1080/15391523.2016.1146564

Henderson-Rosser, A., & Sauers, N. J. (2017). Analyzing the effects of one-to-one learning on inquiry-based instruction. *Computers in the Schools, 34*(1/2), 107–123. https://doi.org/10.1080/07380569.2017.1298955

Holen, J. B., Hung, W., & Gourneau, B. (2017). Does one-to-one technology really work: An evaluation through the lens of activity theory. *Computers in the Schools*, *34*(1–2), 24–44. https://doi.org/10.1080/07380569.2017.1281698

Hong, J.-C., Hwang, M.-Y., Wu, N.-C., Huang, Y.-L., Lin, P.-H., & Chen, Y.-L. (2016). Integrating a moral reasoning game in a blended learning setting: Effects on students' interest and performance. *Interactive Learning Environments*, *24*(3), 572–589. https://doi.org/10.1080/10494820.2014.908926

Hsiao, C. H., & Yang, C. (2011). The intellectual development of the technology acceptance model: A co-citation analysis. *International Journal of Information Management*, *31*(2), 128–136. https://doi.org/10.1016/j.ijinfomgt.2010.07.003

Hsu, P. S. (2016). Examining current beliefs, practices and barriers about technology integration: A case study. *TechTrends: Linking Research & Practice to Improve Learning*, 60(1), 30–40. https://doi.org/10.1007/s11528-015-0014-3

Hsu, S. (2017). Developing and validating a scale for measuring changes in teachers' ICT integration proficiency over time. *Computers & Education, 111*, 18–30. https://doi.org/10.1016/j.compedu.2017.04.001

Huang, C. S. J., Yang, S. J. H., Chiang, T. H. C., & Su, A. Y. S. (2016). Effects of situated mobile learning approach on learning motivation and performance of EFL students. *Journal of Educational Technology & Society*, *19*(1), 263–276. JSTOR. https://eds-b-ebscohost-com.ezp.waldenulibrary.org/eds/pdfviewer/pdfviewer?vid=4&sid=c2e8f42f-d852-42ed-89b8-c2cf2d069777%40pdc-v-sessmgr03

Irawan, V. T., Sutadji, E., & Widiyanti. (2017). Blended learning based on schoology: Effort of improvement learning outcome and practicum chance in vocational high school. *Cogent Education, 4*(1), 1282031. https://doi.org/10.1080/2331186X.2017.1282031

Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing, 72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Karagiozis, N. (2018). The complexities of the researcher's role in qualitative research: The power of reflexivity. *International Journal of Interdisciplinary Educational Studies*, *13*(1), 19–31. https://doi.org/10.18848/2327-011X/CGP/v13i01/19-31

Kellerer, P., Kellerer, E., Werth, E., Werth, L., Montgomery, D., Clyde, R., Cozart, J., Creach, L., Hibbard, L., LaFrance, J., Rupp, N., Walker, N., Carter, T., &

Kennedy, K. (2014). *Transforming K-12 Rural Education through Blended Learning: Teacher Perspectives*. International Association for K-12 Online Learning. https://eric.ed.gov/?id=ED561327

Kihoza, P. D., Zlotnikova, I., Bada, J. K., & Kalegele, K. (2016). An assessment of teachers' abilities to support blended learning implementation in Tanzanian secondary schools. *Contemporary Educational Technology*, *7*(1), 60–84. https://eric.ed.gov/?id=EJ1105654

King, N., Horrocks, C., & Brooks, J. (2018). *Interviews in qualitative research*. SAGE Publications Limited.

Kudryashova, A. V., Gorbatova, T. N., & Rozhkova, N. E. (2016). Developing a blended learning based model for teaching foreign languages in engineering institutions. *SHS Web of Conferences*, 28, 01128. https://doi.org/10.1051/shsconf/20162801128

Lalima, D. K., & Dangwal, K. L. (2017). Blended learning: An innovative approach. *Universal Journal of Educational Research, 5(1): 129-136*. http://DOI: 10.13189/ujer.2017.050116

Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. Educational Media International, 55(1), 79–105. https://doi.org/10.1080/09523987.2018.1439712

Leo, J., & Puzio, K. (2016). Flipped instruction in a high school science classroom. *Journal of Science Education and Technology, 25*(5), 775–781. https://doi.org/10.1007/s10956-016-9634-4

Lightner, C. A., & Lightner-Laws, C. A. (2016). A blended model: Simultaneously teaching a quantitative course traditionally, online, and remotely. *Interactive Learning Environments, 24*(1), 224–238. https://doi.org/10.1080/10494820.2013.841262

Lin, Y.-W., Tseng, C.-L., & Chiang, P.-J. (2016). The effect of blended learning in mathematics course. *EURASIA Journal of Mathematics, Science and Technology Education*, 13(3). https://doi.org/10.12973/eurasia.2017.00641a

Lu, O. H. T., Huang, A. Y. Q., Huang, J. C. H., Lin, A. J. Q., Ogata, H., & Yang, S. J. H. (2018). Applying learning analytics for the early prediction of students' academic performance in blended learning. *Journal of Educational Technology & Society*, *21*(2), 220–232. http://www.jstor.org/stable/26388400

Luo, T., Hibbard, L., Franklin, T., & Moore, D. (2017). Preparing teacher candidates for virtual field placements via an exposure to K-12 online teaching. *Journal of Information Technology Education: Research*, *16*, 001–014. https://doi.org/10.28945/3626

Makki, T. W., O'Neal, L. J., Cotten, S. R., & Rikard, R. V. (2018). When first-order barriers are high: A comparison of second- and third-order barriers to classroom computing integration. *Computers & Education, 120*, 90–97. https://doi.org/10.1016/j.compedu.2018.01.005

Mathews, A. (2017). *Blended learning: A mixed-methods study on successful schools and effective practices*.

http://search.proquest.com/docview/1976814768/abstract/A2155CBE046E4C62P
Q/1

Maxwell, J. A. (1992). *Understanding and validity in qualitative research.* https://search-proquest-com.ezp.waldenulibrary.org/docview/212250067?accountid=14872

Maycock, K. W., Lambert, J., & Bane, D. (2018). Flipping learning not just content: A 4-year action research study investigating the appropriate level of flipped learning. *Journal of Computer Assisted Learning*, *34*(6), 661–672. https://doi.org/10.1111/jcal.12274

Medina, L. C. (2018). Blended learning: Deficits and prospects in higher education. *Australasian Journal of Educational Technology, 34*(1), Article 1. https://doi.org/10.14742/ajet.3100

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. Jossey-Bass.

Merriam, S. B., & Grenier, R. S. (2019). *Qualitative research in practice: Examples for discussion and analysis*. John Wiley & Sons, Incorporated. http://ebookcentral.proquest.com/lib/waldenu/detail.action?docID=5630257

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Mertler, C. A. (2016). *Introduction to educational research.* Los Angeles, CA: Sage.

Molnar, A., Miron, G., & Elgeberi, N. (2019). *Virtual schools in the U.S. 2019*.

http://nepc.colorado.edu/sites/default/files/publications/Virtual%20Schools%2020
19.pdf

Mustafina, A. (2016). Teachers' attitudes toward technology integration in a Kazakhstani
secondary school. *International Journal of Research in Education and Science*,
2(2), 322. https://doi.org/10.21890/ijres.67928

Napitupulu, D., Abdel Kadar, J., & Kartika Jati, R. (2017). Validity testing of technology
acceptance model based on factor analysis approach. *Indonesian Journal of
Electrical Engineering and Computer Science, 5*(3), 697.
https://doi.org/10.11591/ijeecs.v5.i3.pp697-704

National Education Technology Plan. (2016). *Future ready learning: Reimagining the
role of technology in education.* https://tech.ed.gov/files/2015/12/NETP16.pdf

Ndlovu, M. C., & Mostert, I. (2018). Teacher perceptions of moodle and throughput in a
blended learning programme for in-service secondary school mathematics
teachers. *Africa Education Review*, *15*(2), 131–151.
https://doi.org/10.1080/18146627.2016.1241667

Nikolopoulou, K., & Gialamas, V. (2016). Barriers to ICT use in high schools: Greek
teachers' perceptions. *Journal of Computers in Education*, 3(1), 59–75.
https://doi.org/10.1007/s40692-015-0052-z

Noble, K., Pelika, S., & Coons, A. (2017). Online credit recovery programs. *National
Education Association (NEA) research brief.* NBI No. 2.
https://eric.ed.gov/?id=ED595237

Olpak, Y. Z., & Ates, H. (2018). Pre-service science teachers' perceptions toward

    additional instructional strategies in biology laboratory applications: Blended

    learning. *Science Education International*, *29*(2), 88–95.

    https://files.eric.ed.gov/fulltext/EJ1184776.pdf

Osakwe, J., Dlodlo, N., & Jere, N. (2017). Where learners' and teachers' perceptions on

    mobile learning meet: A case of Namibian secondary schools in the Khomas

    region. *Technology in Society*, 49, 16–30.

    https://doi.org/10.1016/j.techsoc.2016.12.004

Panicker, P. (2020). *Embedding Culture and Grit in the Technology Acceptance Model*

    (TAM) for Higher Education. http://arxiv.org/abs/2005.11973

Parks, R. A., Oliver, W., & Carson, E. (2016). The status of middle and high school

    instruction: Examining professional development, social desirability, and teacher

    readiness for blended pedagogy in the southeastern United States. *Journal of*

    Online Learning Research, *2*(2), 79–101.

    https://www.learntechlib.org/primary/p/173236/

Pavlenko, A. (2002). Narrative Study: Whose story is it, anyway? TESOL Quarterly,

    36(2), 213–218. https://doi.org/10.2307/3588332

Pierce, G. L., & Cleary, P. F. (2016). The K-12 educational technology value chain: Apps

    for kids, tools for teachers and levers for reform. *Education and Information*

    Technologies. 21(4), 863–880.

    http://dx.doi.org.ezp.waldenulibrary.org/10.1007/s10639-014-9357-1

Pilgrim, M., Hornby, G., & Macfarlane, S. (2018). Enablers and barriers to developing

  competencies in a blended learning programme for specialist teachers in New

  Zealand. *Educational Review,* 70:5, 548-

  564, DOI: 10.1080/00131911.2017.1345860

Porter, W. W., & Graham, C. R. (2016). Institutional drivers and barriers to faculty

  adoption of blended learning in higher education. *British Journal of Educational*

  Technology, 47(4), 748–762. https://doi.org/10.1111/bjet.12269

Pulham, E., & Graham, C. R. (2018). Comparing K-12 online and blended teaching

  competencies: A literature review. *Distance Education*, *39*(3), 411–432.

  https://doi.org/10.1080/01587919.2018.1476840

Qasem, A. A. A., & Viswanathappa, G. (2016). Teacher perceptions towards ICT

  integration: Professional development through blended learning. *Journal of*

  *Information Technology Education: Research, 15,*561-575.

  http://www.informingscience.org/Publications/3562

Qian, Y., & Lehman, J. (2017). Students misconceptions and other difficulties in

  introductory programming: A Literature Review. *ACM Transactions on*

  Computing Education, 18(1), 1:1-1:24. https://doi.org/10.1145/3077618

Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online

  component of blended learning: A systematic review. *Computers & Education,*

  144, 103701. https://doi.org/10.1016/j.compedu.2019.103701

Rasmitadila, W., Humaira, M., Tambunan, A., Rachmadtullah, R., & Samsudin, A.

  (2020). Using blended learning approach (BLA) in inclusive education course: A

study investigating teacher students' perception. *International Journal of Emerging Technologies in Learning* 15(2):72–85. http://www.learntechlib.org.ezp.waldenulibrary.org/p/217165/

Ravitch, S. M., & Carl, N. M. (2016). *Qualitative research: Bridging the conceptual, theoretical, and methodological*. Los Angeles, CA: Sage Publications.

Riel, J., Lawless, K. A., & Brown, S. W. (2016). Listening to the teachers: Using weekly online teacher logs for ROPD to identify teachers' persistent challenges when implementing a blended learning curriculum. *Journal of Online Learning Research*, *2*(2), 169–200. https://www.learntechlib.org/primary/p/173236/

Ross, S. M. (2020). Technology infusion in K-12 classrooms: A retrospective look at three decades of challenges and advancements in research and practice. *Educational Technology Research and Development.* https://doi.org/10.1007/s11423-020-09756-7

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative interviewing: The art of hearing data (3rd ed.).* Sage Publications.

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). Sage Publications

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, *52*(4), 1893–1907. https://doi.org/10.1007/s11135-017-0574-8

Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education. *Computers & Education*, *128*, 13–35. https://doi.org/10.1016/j.compedu.2018.09.009

Shand, K., & Farrelly, S. G. (2018). The art of blending: Benefits and challenges of a blended course for preservice teachers. *Journal of Educators Online*, *15*(1). https://eric.ed.gov/?id=EJ1168949

Sharma, S., & Garg, S. (2016). Web based learning: A research on assessing its effectiveness in contrast to traditional classroom learning environment. *2016 International Conference on Computational Techniques in Information and Communication Technologies (ICCTICT)*, https://doi.org/10.1109/ICCTICT.2016.7514547

Simon, M. K., & White, J. (n.d.). *Survey/Interview Validation Rubric for Expert Panel - VREP©* http://dissertationrecipes.com/

Simsek, I., & Can, T. (2020). Using tablets for technology integration in classroom differentiation. https://doi.org/10.5772/intechopen.85713

South Carolina State Department (2017). *South carolina 2016-17 dropout rates by school*. https://ed.sc.gov/districts-schools/school-safety/discipline-related-reports/dropout-data/2016-17-state-dropout-report/

South Carolina State Department (2019). *S. C. state report card*. Retrieved from https://screportcards.ed.sc.gov/overview/?q=eT0yMDE5JnQ9SCZzaWQ9MjAwMTAxMw MTAxMw

South Carolina State Department (2020). *S. C. state report card*. Retrieved from

https://screportcards.ed.sc.gov/overview/?q=eT0yMDIwJnQ9SCZzaWQ9MjAw

MTAxMw

Staker, H., & Horn, M. B. (2012). Classifying K-12 Blended Learning. In Innosight

Institute. *Innosight Institute*. https://eric.ed.gov/?id=ED535180

Sublett, C., & Chang, Y.-C. (2019). Logging in to press on: An examination of high

school dropout and completion among students with disabilities in online courses.

Journal of Special Education Technology, *34*(2), 106–119.

https://doi.org/10.1177/0162643418795841

Tanduklangi, A., Lio, A., & Alberth. (2019). Classroom action research in teaching

English for senior high school students through blended learning in Kendari of

Indonesia. *Journal of E-Learning & Knowledge Society*, *15*(1), 169–182.

https://doi.org/10.20368/1971-8829/1579

Tang, C. M., & Chaw, L. Y. (2016). Digital literacy: A prerequisite for effective learning

in a blended learning environment? *Electronic Journal of E-Learning*, *14*(1), 54–

65. https://eric.ed.gov/?id=EJ1099109

Tarhini, A., Hone, K., Liu, X., & Tarhini, T. (2017). Examining the moderating effect of

individual-level cultural values on users' acceptance of E-learning in developing

countries: A structural equation modeling of an extended technology acceptance

model. *Interactive Learning Environments*, 25:3, 306-

328, DOI: 10.1080/10494820.2015.1122635

Theofanidis, D., & Fountouki, A. (2018). Limitations and delimitations in the research

process. *Perioperative nursing (GORNA), 7*(3), 155-162.

http://doi.org/10.5281/zenodo.2552022

Thomas, S. (2016). Future ready learning: Reimagining the role of technology in

education. 2016 National Education Technology Plan. In *Office of Educational

Technology, US Department of Education*. Office of Educational Technology, US

Department of Education. https://eric.ed.gov/?id=ED571884

Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017).

Understanding the relationship between teachers' pedagogical beliefs and

technology use in education: A systematic review of qualitative evidence.

Educational Technology Research and Development, 65(3), 555–575.

https://doi.org/10.1007/s11423-016-9481-2

Truitt, A. A., & Ku, H.-Y. (2018). A case study of third grade students' perceptions of the

station rotation blended learning model in the United States. *Educational Media

International, 55*(2), 153–169. https://doi.org/10.1080/09523987.2018.1484042

Tucker, C. R. (2012*). Blended learning in grades 4-12.* Corwin

Turner, J., Young-Lowe, W. F., & Newton, J. (2018). Teachers' perceptions of the use of

blended learning for instructional delivery and student production in K-12

classrooms. *International Journal of Learning and Development*, *8*(2), 18–26.

https://doi.org/10.5296/ijld.v8i2.12863

U.S. Department of Education. (2020). *Every student succeeds act (ESSA).*

https://www.ed.gov/essa?src=rn

Vongkulluksn, V. W., Xie, K., & Bowman, M. A. (2018). The role of value on teachers'

 internalization of external barriers and externalization of personal beliefs for

 classroom technology integration. *Computers & Education*, *118*, 70–81.

 https://doi.org/10.1016/j.compedu.2017.11.009

Vu, P., Fredrickson, S., & Gaskill, M. (2019). One-to-one initiative implementation from

 insiders' perspectives. *TechTrends: Linking Research & Practice to Improve*

 Learning, *63*(1), 62–67. https://doi.org/10.1007/s11528-018-0359-5

Weller, S. C., Vickers, B., Bernard, H. R., Blackburn, A. M., Borgatti, S., Gravlee, C. C.,

 & Johnson, J. C. (2018). Open-ended interview questions and saturation. *PLoS*

 ONE, *13*(6). https://doi.org/10.1371/journal.pone.0198606

Whiteside, A. L., Garrett Dikkers, A., & Lewis, S. (2016). "More confident going into

 college": Lessons learned from multiple stakeholders in a new blended learning

 initiative. *Online Learning*, *20*(4), 136–156. https://eric.ed.gov/?id=EJ1124646

Widyahastuti, F., Fransiskus, D., & Tjhin, V. U. (2017). How active are K-12 students

 using edmodo as online motivation, interaction and collaboration tools for

 learning process? Pp. 94–97 in *2017 10th International Conference on Human*

 System Interactions (HSI). http://DOI**:** 10.1109/HSI.2017.8005005

Wu, B., & Chen, X. (2017). Continuance intention to use MOOCs: Integrating the

 technology acceptance model (TAM) and task technology fit (TTF) model.

 Computers in Human Behavior, 67, 221–232.

 https://doi.org/10.1016/j.chb.2016.10.028

Yin, R. K. (2015). *Qualitative Research from Start to Finish*, Second Edition. Guilford

   Publications.

Zehra, R., & Bilwani, A. (2016). Perceptions of teachers regarding technology integration

   in classrooms: A comparative analysis of elite and mediocre schools. *Journal of

   Education and Educational Development*, *3*(1), 1.

   https://doi.org/10.22555/joeed.v3i1.709

Zheng, B., Warschauer, M., Lin, C.-H., & Chang, C. (2016). Learning in one-to-one

   laptop environments: A meta-analysis and research synthesis. *Review of

   Educational Research*, *86*(4), 1052–1084.

   https://doi.org/10.3102/0034654316628645

Zhonggen, Y. (2016). Blended learning over two decades. *Professional Development and

   Workplace Learning: Concepts, Methodologies, Tools, and Applications*, 1248–

   1267. https://doi.org/10.4018/978-1-4666-8632-8.ch068

Appendix A: Interview Protocol and Questions

My name is Kaye-Ann Yarborough and I will be facilitating this telephone/virtual interview. In this study, I will explore the gap in practice regarding the implementation of the online component of blended learning. Also, I will focus on how high school teachers implement the online component of blended learning in high school classrooms. I will also focus on how teachers' perceived ease of use and perceived usefulness of blended learning technologies affect their decision to implement blended learning in their classroom instruction.

Your participation in the study is completely confidential. Therefore, paper-based data will be secured in a filing cabinet, and electronic data will be stored on a computer with cloud storage that is protected by passwords. Also, data from this study will be stored protected for five years, as a requirement of the university, and then destroyed by shredding any paper document and deleting electronic documents. Participation in this study is voluntary and you can withdraw your consent at any time without consequences. This interview will take approximately 45 minutes and will follow a designed protocol.

Do you have any questions? If there are no further questions, let us begin the interview.

Demographic Questions:

1. What is your gender?

2. Which one of the following age group do you belong to:
   20-24
   25-29
   30-34

35-40
over 41?

3. How long have you been teaching?

4. How long have you been teaching in this school district?

5. How long have you been a high school teacher?

6. What subject area(s) do you teach?

7. What type of technology training have you had?

8. How many years of experience to have with implementing blended learning in your classroom instruction?

RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?

1. What blended learning technology tools do you have access to?

2. What are some online technology tools that you use in your classroom?

3. What makes technology easy to use and/or useful to you?

4. How are these tools useful or not useful in your daily instruction?

5. Could you describe how these technology tools are easy or difficult to use in your daily instruction?

RQ2: How do core content teachers implement blended learning in their classrooms?

1. How would you define blended learning?

2. How do you implement blended learning in your classroom instruction? Explain.

3. How often do you implement blended learning in your classroom instruction per week?

4. What is your perception of blended learning in classroom instruction based on your experience implementing?

RQ3: What are teachers' perceptions of challenges related to implementing blended learning?

1. What are some of the factors that prevent you from successfully implementing blended learning?

2. What are some of the factors that enable you to successfully implement blended learning?

3. Tell me any additional comments about the topic.

Thank you for your time and cooperation. If you need to contact me, I can be reached by email at kaye-ann.yarborough@waldenu.edu or by telephone at 803-840-6192

Appendix B: Interview and Research Questions Alignment

Research Questions	Interview Questions

Demographic Questions	What is your gender?
	
	 Which one of the following age group do you belong to:
	    20-24
	    25-29
	    30-34
	    35-40
	    over 41?
	
	 How long have you been teaching?
	
	 How long have you been teaching in this school district?
	
	 How long have you been a high school teacher?
	
	 What subject area do you teach?
	
	 What type of technology training have you had?
	
	 How many years of experience to have with implementing blended learning in your classroom instruction?

RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?	What blended learning technology tools do you have access to? What are some online technology tools that you use in your classroom? What makes technology easy to use and/or useful to you? How are these tools useful or not useful in your daily instruction?

	Could you describe how these technology tools are easy or difficult to use in your daily instruction?
RQ2: How do core content teachers implement blended learning in their classrooms?	How would you define blended learning? Explain how you implement blended learning in your classroom instruction. How often do you implement blended learning in your classroom instruction per week? What is your perception of blended learning in classroom instruction based on your experience implementing?
RQ3: What are teachers' perceptions of challenges related to implementing blended learning?	What are some of the factors that prevent you from successfully implementing blended learning? What are some of the factors that enable you to successfully implement blended learning? Please provide any additional comments.

Appendix C: Expert Panel Review Forms

Survey/Interview Validation Rubric for Expert Panel - VREP©
By Marilyn K. Simon with input from Jacquelyn White

http://dissertationrecipes.com/

Criteria	Operational Definitions	Score 1=Not Acceptable (major modifications needed) 2=Below Expectations (some modifications needed) 3=Meets Expectations (no modifications needed but could be improved with minor changes) 4=Exceeds Expectations (no modifications needed)				Questions NOT meeting standard (List page **and** question number) and need to be revised. *Please use the comments and suggestions section to recommend revisions.*
		1	2	3	4	
Clarity	• The questions are direct and specific. • Only one question is asked at a time. • The participants can understand what is being asked. • There are no *double-barreled* questions (two questions in one).			3		
Wordiness	• Questions are concise. • There are no unnecessary words				4	
Negative Wording	• Questions are asked using the affirmative (e.g., Instead of asking,				4	

	"Which methods are not used?", the researcher asks, "Which methods *are* used?")					
Overlapping Responses	• No response covers more than one choice. • All possibilities are considered. • There are no ambiguous questions.				4	
Balance	• The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone.				4	
Use of Jargon	• The terms used are understandable by the target population. • There are no clichés or hyperbole in the wording of the questions.				4	
Appropriateness of Responses Listed	• The choices listed allow participants to respond appropriately. • The responses apply to all situations or offer a way for those to respond with unique situations.				4	
Use of Technical Language	• The use of technical language is minimal and appropriate. • All acronyms are defined.				4	
Application to Praxis	• The questions asked to relate to the daily practices or expertise of the potential participants.				4	
Relationship to Problem	• The questions are sufficient to resolve the problem in the study				4	

	• The questions are sufficient to answer the research questions. • The questions are sufficient to obtain the purpose of the study.					
Measure of Construct: **A: ( )**	• The survey adequately measures this construct.*[Include Operational Definition and concepts associated with construct]					
Measure of Construct: **B: ( )**	• The survey adequately measures this construct. *[Include Operational Definition and concepts associated with construct]					
Measure of Construct: **C: ( )**	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					
Measure of Construct: **D: ( )**	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					

* The operational definition should include the domains and constructs that are being investigated. You need to assign meaning to a variable by specifying the activities and operations necessary to measure, categorize, or manipulate the variable For example, to measure the construct *successful aging* the following domains could be included: degree of physical disability (low number); prevalence of physical performance (high number), and degree of cognitive impairment (low number). If you were to measure creativity, this construct is generally recognized to consist of flexibility, originality, elaboration, and other concepts. Prior studies can be helpful in establishing the domains of a construct.

Comments and Suggestions

Minor edits for readability.

Expert A

Survey/Interview Validation Rubric for Expert Panel - VREP©

By Marilyn K. Simon with input from Jacquelyn White

http://dissertationrecipes.com/

Criteria	Operational Definitions	Score 1=Not Acceptable (major modifications needed) 2=Below Expectations (some modifications needed) 3=Meets Expectations (no modifications needed but could be improved with minor changes) 4=Exceeds Expectations (no modifications needed)				Questions NOT meeting standard (List page **and** question number) and need to be revised. *Please use the comments and suggestions section to recommend revisions.*
		1	2	3	4	
Clarity	• The questions are direct and specific. • Only one question is asked at a time. • The participants can understand what is being asked. • There are no *double-barreled* questions (two questions in one).				X	
Wordiness	• Questions are concise. • There are no unnecessary words				X	
Negative Wording	• Questions are asked using the affirmative (e.g., Instead of asking, "Which methods are not used?", the researcher asks, "Which methods *are* used?")				X	
Overlapping Responses	• No response covers more than one choice.		X			Question 4 for R2 asking 2 things. I

	• All possibilities are considered. • There are no ambiguous questions.					suggest splitting this question into 2 and revising it for clarity: How are these tools are useful or not useful in your daily instruction?
Balance	• The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone.				X	
Use of Jargon	• The terms used are understandable by the target population. • There are no clichés or hyperbole in the wording of the questions.				X	
Appropriateness of Responses Listed	• The choices listed allow participants to respond appropriately. • The responses apply to all situations or offer a way for those to respond with unique situations.				X	
Use of Technical Language	• The use of technical language is minimal and appropriate. • All acronyms are defined.				X	
Application to Praxis	• The questions asked to relate to the daily practices or expertise of the potential participants.				X	
Relationship to Problem	• The questions are sufficient to resolve the problem in the study				X	

					X	
	• The questions are sufficient to answer the research questions. • The questions are sufficient to obtain the purpose of the study.					
Measure of Construct: A: ( )	• The survey adequately measures this construct.*[Include Operational Definition and concepts associated with construct]				X	
Measure of Construct: B: ( )	• The survey adequately measures this construct. *[Include Operational Definition and concepts associated with construct]				X	
Measure of Construct: C: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]				X	
Measure of Construct: D: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]				X	

* The operational definition should include the domains and constructs that are being investigated. You need to assign meaning to a variable by specifying the activities and operations necessary to measure, categorize, or manipulate the variable For example, to measure the construct *successful aging* the following domains could be included: degree of physical disability (low number); prevalence of physical performance (high number), and degree of cognitive impairment (low number). If you were to measure creativity, this construct is generally recognized to consist of flexibility, originality, elaboration, and other concepts. Prior studies can be helpful in establishing the domains of a construct.

Comments and Suggestions

There is a minor error in the fourth question for R2. I suggest correcting it and/or splitting the question into two questions.

Expert B

Survey/Interview Validation Rubric for Expert Panel - VREP©
By Marilyn K. Simon with input from Jacquelyn White

http://dissertationrecipes.com/

Criteria	Operational Definitions	Score 1=Not Acceptable (major modifications needed) 2=Below Expectations (some modifications needed) 3=Meets Expectations (no modifications needed but could be improved with minor changes) 4=Exceeds Expectations (no modifications needed)				Questions NOT meeting standard (List page and question number) and need to be revised. *Please use the comments and suggestions section to recommend revisions.*
		1	2	3	4	
Clarity	• The questions are direct and specific. • Only one question is asked at a time. • The participants can understand what is being asked. • There are no *double-barreled* questions (two questions in one).			X		
Wordiness	• Questions are concise. • There are no unnecessary words			X		
Negative Wording	• Questions are asked using the affirmative (e.g., Instead of asking, "Which methods are not used?", the researcher asks, "Which methods *are* used?")				X	

Category	Description					Comments
Overlapping Responses	• No response covers more than one choice. • All possibilities are considered. • There are no ambiguous questions.			X		
Balance	• The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone.				X	
Use of Jargon	• The terms used are understandable by the target population. • There are no clichés or hyperbole in the wording of the questions.				X	
Appropriateness of Responses Listed	• The choices listed allow participants to respond appropriately. • The responses apply to all situations or offer a way for those to respond with unique situations.			X		
Use of Technical Language	• The use of technical language is minimal and appropriate. • All acronyms are defined.				X	
Application to Praxis	• The questions asked relate to the daily practices or expertise of the potential participants.			X		
Relationship to Problem	• The questions are sufficient to resolve the problem in the study • The questions are sufficient to answer the research questions.			X		See comments

	• The questions are sufficient to obtain the purpose of the study.					
Measure of Construct: A: ( )	• The survey adequately measures this construct.*[Include Operational Definition and concepts associated with construct]					
Measure of Construct: B: ( )	• The survey adequately measures this construct. *[Include Operational Definition and concepts associated with construct]					
Measure of Construct: C: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					
Measure of Construct: D: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					

* The operational definition should include the domains and constructs that are being investigated. You need to assign meaning to a variable by specifying the activities and operations necessary to measure, categorize, or manipulate the variable For example, to measure the construct *successful aging* the following domains could be included: degree of physical disability (low number); prevalence of physical performance (high number), and degree of cognitive impairment (low number). If you were to measure creativity, this construct is generally recognized to consist of flexibility, originality, elaboration, and other concepts. Prior studies can be helpful in establishing the domains of a construct.

Comments and Suggestions

1. Some demographic questions could perhaps be a part of screening process? What is your participation criteria?
2. Change "How do you implement blended learning in your classroom instruction? Explain." to "Explain how you implement blended earning in your classroom instruction."
3. For RQ2, you could condense the number of interview questions by asking, "How do the blended learning tools that you have or don't have access to support, hinder or prevent the implementation of blended learning in your classroom?"
4. Check misused words in a couple interview questions (e.g. Using "to" rather than "do", etc.)

Expert C

Survey/Interview Validation Rubric for Expert Panel - VREP©
By Marilyn K. Simon with input from Jacquelyn White

http://dissertationrecipes.com/

Criteria	Operational Definitions	Score 1=Not Acceptable (major modifications needed) 2=Below Expectations (some modifications needed) 3=Meets Expectations (no modifications needed but could be improved with minor changes) 4=Exceeds Expectations (no modifications needed)				Questions NOT meeting standard (List page **and** question number) and need to be revised. *Please use the comments and suggestions section to recommend revisions.*
		1	2	3	4	

					X	
Clarity	• The questions are direct and specific. • Only one question is asked at a time. • The participants can understand what is being asked. • There are no *double-barreled* questions (two questions in one).				X	
Wordiness	• Questions are concise. • There are no unnecessary words				X	
Negative Wording	• Questions are asked using the affirmative (e.g., Instead of asking, "Which methods are not used?", the researcher asks, "Which methods *are* used?")				X	
Overlapping Responses	• No response covers more than one choice. • All possibilities are considered. • There are no ambiguous questions.				X	
Balance	• The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone.			X		
Use of Jargon	• The terms used are understandable by the target population. • There are no clichés or hyperbole in the wording of the questions.				X	
Appropriateness of Responses Listed	• The choices listed allow participants to respond appropriately. • The responses apply to all situations or offer a				X	

	way for those to respond with unique situations.					
Use of Technical Language	• The use of technical language is minimal and appropriate. • All acronyms are defined.				X	
Application to Praxis	• The questions asked relate to the daily practices or expertise of the potential participants.				X	
Relationship to Problem	• The questions are sufficient to resolve the problem in the study • The questions are sufficient to answer the research questions. • The questions are sufficient to obtain the purpose of the study.				X	
Measure of Construct: A: ( )	• The survey adequately measures this construct.*[Include Operational Definition and concepts associated with construct]					
Measure of Construct: B: ( )	• The survey adequately measures this construct. *[Include Operational Definition and concepts associated with construct]					
Measure of Construct: C: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					
Measure of Construct: D: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					

* The operational definition should include the domains and constructs that are being investigated. You need to assign meaning to a variable by specifying the activities and operations necessary to measure, categorize, or manipulate the variable For example, to measure the construct *successful aging* the following domains could be included: degree of physical disability (low number); prevalence of physical performance (high number), and degree of cognitive impairment (low number). If you were to measure creativity, this construct is generally recognized to consist of flexibility, originality, elaboration, and other concepts. Prior studies can be helpful in establishing the domains of a construct.

Comments and Suggestions

The questions provided by the researcher allow for an unbiased, thorough study of the topic. Issues of validity are addressed in the syntax and construction of the questions and their relationship to the Research Questions.

Expert D

Survey/Interview Validation Rubric for Expert Panel - VREP©
By Marilyn K. Simon with input from Jacquelyn White

http://dissertationrecipes.com/

Criteria	Operational Definitions	Score 1=Not Acceptable (major modifications needed) 2=Below Expectations (some modifications needed) 3=Meets Expectations (no modifications needed but could be improved with minor changes) 4=Exceeds Expectations (no modifications needed)				Questions NOT meeting standard (List page <u>and</u> question number) and need to be revised. *Please use the comments and suggestions section to recommend revisions.*
		1	2	3	4	

Clarity	• The questions are direct and specific. • Only one question is asked at a time. • The participants can understand what is being asked. • There are no *double-barreled* questions (two questions in one).				X	
Wordiness	• Questions are concise. • There are no unnecessary words				X	
Negative Wording	• Questions are asked using the affirmative (e.g., Instead of asking, "Which methods are not used?", the researcher asks, "Which methods *are* used?")				X	
Overlapping Responses	• No response covers more than one choice. • All possibilities are considered. • There are no ambiguous questions.				X	
Balance	• The questions are unbiased and do not lead the participants to a response. The questions are asked using a neutral tone.				X	
Use of Jargon	• The terms used are understandable by the target population. • There are no clichés or hyperbole in the wording of the questions.				X	
Appropriateness of Responses Listed	• The choices listed allow participants to respond appropriately. • The responses apply to all situations or offer a way				X	

	for those to respond with unique situations.					
Use of Technical Language	• The use of technical language is minimal and appropriate. • All acronyms are defined.				X	
Application to Praxis	• The questions asked to relate to the daily practices or expertise of the potential participants.				X	
Relationship to Problem	• The questions are sufficient to resolve the problem in the study • The questions are sufficient to answer the research questions. • The questions are sufficient to obtain the purpose of the study.				X	
Measure of Construct: A: ( )	• The survey adequately measures this construct.*[Include Operational Definition and concepts associated with construct]					
Measure of Construct: B: ( )	• The survey adequately measures this construct. *[Include Operational Definition and concepts associated with construct]					
Measure of Construct: C: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					
Measure of Construct: D: ( )	• The survey adequately measures this construct.* [Include Operational Definition and concepts associated with construct]					

* The operational definition should include the domains and constructs that are being investigated. You need to assign meaning to a variable by specifying the activities and operations necessary to measure, categorize, or manipulate the variable For example, to measure the construct *successful aging* the following domains could be included: degree of physical disability (low number); prevalence of physical performance (high number), and degree of cognitive impairment (low number). If you were to measure creativity, this construct is generally recognized to consist of flexibility, originality, elaboration, and other concepts. Prior studies can be helpful in establishing the domains of a construct.

Comments and Suggestions

The questions need to know what needs to be measured. Words used were neutral and not leading. The language used is clear that the required data can be received. The questions were easy to understand which will assist in getting better response and answer. No double negatives or more than 1 negative word in question.
Expert E

Appendix D: Data Analysis Chart

Research Questions	Interview Questions	Codes	Categories	Themes
RQ1: What are core content teachers' perceptions of the ease and usefulness of blended learning?	What blended learning technology tools do you have access to?	edgenuity, jam board, google classroom, google suites, Class kik, mastery connect, zoom, Ed puzzle, kahoot, quizziz, google form, play posits, padlet, poll everywhere, USA Test Prep, computer, Chromebooks, trutouch screen/smart boards, writing pads, graphing calculators, CK12, quizlet, modern teacher, power school	Facilitates independent learning Assessment Differentiation Student engagement Userfriendly Accessibility Feedback on student learning Distraction	Ease of navigation and user-friendliness Providing teacher/student feedback Promotes student independence/autonomy Student interest and engagement Enhance/extend learning Individualized/Differentiated instruction
	What are some online technology tools that you use in your classroom?			
	What makes a technology easy to use and/or useful to you?	Easy navigation, user friendly, manageability for students, adaptability. Quick feedback,		

		engaging, self-paced, easily accessible, clear instructions. Simple, simple setup		
	How are these tools useful or not useful in your daily instruction?	Useful, feedback on student learning, facilitates independent learning, easy navigation, previous knowledge check, lesson openers, closed activity, or assessment. Student engagement, Distraction, easy to manipulate, differentiate instruction, remedial learning Reinforce learning, Interesting, Self-paced, time management, easy access to information, deeper student engagement,		
	Could you describe how	User friendly,		

	these technology tools are easy or difficult to use in your daily instruction	Interactive, Easy navigation, independent assignments, lack technology competence, Technology problems Accessibility to assignments Easy to assign student work		
RQ2: How do core content teachers implement blended learning in their classrooms?	How would you define blended learning?	Asynchronous, synchronous, teaching, learning, technology use, technology combine with face-to-face instruction, flipped classroom. digital technology in instruction, using the internet, as well as in-person learning	Technology combine with face-to-face instruction Asynchronous and synchronous teaching and learning	Blended learning
	Explain how you implement blended learning in your classroom instruction.	Videos, lectures Reinforce learning, google slides, lesson introduction, Independent assignments online,	Flipped classroom Flex model Face-to-face driver model	Flipped classroom Face-to-face model Teacher's perception and blended learning

		Assessment, independent practice, flipped classroom Google classroom		
	How often do you implement blended learning in your classroom instruction per week?	Everyday Twice a day		
	What is your perception of blended learning in classroom instruction based on your experience implementing?	Student engagement, Required for student learning, Technology, Improve student attention, improve student learning Provide 21st-century technology skills, expand students' learning. Distraction, Supplement teaching, Differentiation, Increases rigor,	Students engagement Improves students' learning Teacher-student connection Student motivation Enhances pedagogy	Providing teacher/student feedback Promotes student independence/autonomy Student interest and engagement Enhance/extend learning Individualized/Differentiated instruction

		Improve student learning, Effective, challenging Replace human effect	Distraction Challenging Replace human effect	May cause distraction
RQ3: What are teachers' perceptions of challenges related to implementing blended learning?	What are some of the factors that prevent you from successfully implementing blended learning?	Lack of internet access, Types of technology, student interest, access to technology devices No devices Teacher technology competence, poor preparation, website failures, Chromebook issues, slow internet, sometimes no internet access. Lack of student participation,	Lack of resources (internet, devices) Teacher technology competence	Lack of resources Teacher technology competence

	What are some of the factors that enable you to successfully implement blended learning?	Support both district and coworkers, available technology resources for both teachers and students, internet access, Mifi, user-friendly technology, professional development, training, support, experience, support from peers, professional development	Support Personal Development Accessibility of technology	Factors enabling successful blended learning implementation
	Please provide any additional comments.	Technology, Better teacher-student connection, aids content delivery, keeping students motivated and actively participating Impact student learning, Mastering technology skills, classroom management Student enagement	Students engagement Improves students' learning Teacher student connection Student motivation	Student interest and engagement Enhance/extend learning