A PHENOMENOLOGICAL STUDY OF NORTH CAROLINA ELEMENTARY

TEACHERS' LIVED EXPERIENCES WITH GOOGLE CLASSROOM INTEGRATION

by

Hilary Dodson

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this transcendental phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. Google Classroom is a learning management system and component of the technology integration that many teachers use to organize their classroom content. The discovery learning theory by Bruner guided this study. The problem of this study was North Carolina elementary teachers experience difficulties integrating technology, using applications like Google Classroom, in combination with more traditional curriculum and instructional strategies. The central research question was: What are North Carolina elementary teachers' perceptions of the ways in which Google Classroom technology integration impacts classroom instruction? The three subquestions then probed North Carolina elementary teachers' perceptions of the ways Google Classroom technology integration impacts student understanding, professional development, and teacher attitudes. Participants for the study included 12 teachers from four Google Elementary Schools in the Piedmont Triad area of North Carolina. Data were collected through individual interviews, a focus group, and Google Slides, and yielded four major themes: (a) implementation of technology, (b) teacher training and support, (c) impact on student understanding, and (d) attitudes about implementing technology. The findings indicated a concise implementation process which assisted with teacher acceptance of technology integration. Findings also revealed training and support at the school level played a key role in teacher acceptance of Google Classroom. Most participants expressed a positive attitude about technology integration.

Keywords: blended learning, elementary school, Google Classroom, technology integration, professional development, training and support.

Copyright Page

Dedication

I dedicate this to teachers who are constantly giving their all in their classrooms. Teachers are constantly teaching and trying their best to educate future generations. I also dedicate this study to my parents and friends: to my parents, for supporting me and understanding the challenges of this process and reminding me to never give up; to my friends, for being encouraging, loving, and supportive throughout the journey.

Acknowledgments

      I would like to thank my dissertation chair Dr. Randy Tierce for his feedback, guidance, and direction. I would also like to acknowledge the site for granting me the permission to conduct this study. I would like to thank the participants in this study for their hard work, dedication, and time.

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List of Abbreviations

Academically and Intellectually Gifted (AIG)

Al Buraimi University College (BUC)

Application Program Interfaces (APIs)

Bloomington Public Schools (BPS)

Charlotte-Mecklenburg Schools (CMS)

Digital Education Revolution (DER)

Dublin Unified School District (DUSD)

Google Suite for Education (GSFE)

Individualized Education Program (IEP)

Information Technology (IT)

Institutional Review Board (IRB)

Instructional Technology Facilitator (ITF)

Learning Management System (LMS)

New South Wales (NSW)

North Carolina Technology in Education Society (NCTIES)

One-to-One (1:1)

Professional Development (PD)

Quick Response (QR)

Substitution, Augmentation, Modification, Redefinition (SAMR)

Technological Pedagogical Content Knowledge (TPACK)

CHAPTER ONE: INTRODUCTION

Overview

The problem examined in the study was North Carolina elementary teachers' experience difficulties integrating technology, using applications like Google Classroom, alongside more traditional curriculum and instructional strategies. The purpose of this transcendental phenomenological study was to understand the lived experiences of North Carolina elementary school teachers who have integrated technology, specifically Google Classroom. The motivation for this study came from my daily work with teachers as an instructional technology facilitator. This chapter includes the framework for the research, a discussion regarding the limited amount of information related to Google Classroom, the gap in the research, and the reasoning behind the study. In addition, the chapter contains the study background, the significance of the study, the formal research questions, and definitions of the terms relevant to the study.

Background

In today's schools, educators, teachers, and students are expected to become increasingly technologically advanced (Christensen, 2002). In addition, many public elementary schools use technology devices, including iPads, laptops, Smartboards, desktops, projectors, and sound systems (Eady & Lockyer, 2013). However, as technology improves, the number of devices and systems used in classrooms is expected to increase (Google Inc., 2015b; 2016a). The Google Suite for Education (GSFE) has become an important platform for many school districts, where students utilize Google applications, including Drive, Docs, Slides, Hangout, Gmail, and a learning management system (LMS) known as Google Classroom (Google Inc., 2015b). Researchers noted Google is one of the more advanced applications that teachers use in their classrooms to manage assignments and websites and distribute a variety of information to

students (Bhat, Raju, Bikramjit, & D'Souza, 2018). However, other scholars observed while some teachers utilize applications, others resist technological advances (Balta & Duran, 2015).

Several studies indicated school districts have implemented technology as a part of standard policy and the effectiveness of technology integration in education has been researched heavily over the past few years (Agyei & Keengwe, 2014; Ahlfeld, 2017; Christensen, 2002; Ertmer & Ottenbreit-Leftwich, 2010; Frazel, 2007; Munoz, 2013; Sahin, Top, & Delen, 2016). Recent research related to Google applications and technology integration includes an emphasis on the use of Chromebooks in education and the use of Google education apps in the classroom (Ahlfeld, 2017; Papadakis, Kalogiannakis, & Zaranis, 2018). Much of the research related to Google applications is focused on middle school, high school, or higher education (Barlow & Lane, 2007; Herrick, 2009; Oishi, 2007; Sahin et al., 2016). However, only a small number of researchers have investigated technology integration in elementary schools (Frazel, 2007). Limited research identified teachers' experiences with different technology applications, including the use of Google Classroom at the elementary level (Bhat et al., 2018; Hooker, 2014; Logofatu, Visan, & Ungureonu, 2015; Ventayen, Estira, De Guzman, Cabaluna, & Espinosa, 2018). This current study was an exploration of elementary school teachers' perceptions of their experiences when integrating Google Classroom, an LMS.

Technology has changed significantly over the last 50 years. During this dynamic period of change in education, students have moved from using typewriters to laptop computers to their own personal devices (Miller & Skinner, 2015). Because of these technological advances, teachers must remain current on ways to implement new initiatives and continue to integrate technology in ways that positively impact student learning (O'Neal, Gibson, & Cotten, 2017; Ryan & Bagley, 2015). By utilizing Google applications and creating blended learning

opportunities, educators can offer students opportunities to stay current on technology while learning the curriculum (McKnight et al., 2016; Ryan & Bagley, 2015).

Google Classroom is an LMS created as a part of the GSFE to assist educators in distributing information and assignments to their students in a digital manner (Bhat et al., 2018). Nonprofit organizations and schools can access Google Classroom free of charge through their organization's Google account. Accessing Google Classroom encourages learners and instructors by providing ease of connection both inside and outside of school. Google Classroom does not use paper and therefore saves time by facilitating the creation, organization, and maintenance of class rosters, distribution of assignments, and communication with students and educators (Google Inc., 2018a).

As a part of the GSFE applications, Google has incorporated a variety of other apps within Google Classroom, including Google Docs, Slides, Sheets, Calendar, and Drive (Bell & Miller, 2017). Educators use applications as educational tools based on the subject area they are teaching. For example, a science teacher may use Google Classroom to have students create a 3D model of a cell and label the parts, while a language arts teacher may have students submit their work by utilizing Google Docs (Brown & Hocutt, 2015). Another example of teachers utilizing applications for educational tools is teacher use of Google Earth to teach a unit on plate tectonics or provide science explanations (Blank, Plautz, Almquist, Crews, & Estrada, 2012).

Historical Context

In 2014, researchers in education were looking for an LMS that interconnected with Google applications (Etherington, 2014; Magid, 2014). From the time the LMS Google Classroom was released to the public until today, the implementation of Google Classroom in educational settings has increased immensely with frequent updates (Brabazon, 2016). Many

schools that use the Google platform now train teachers to utilize this LMS as a blended classroom method (Chen, 2016).

Educators have integrated technology into classrooms for years. From 2008 to the present, digital learning in the classroom has become increasingly prevalent (Holmes, Tracy, Painter, Oestreich, & Park, 2015). Each day, new ideas and methods are integrated to keep students engaged (Holmes et al., 2015). Many schools are forced to decide which LMS they want to utilize based on usability, price, and appearance. Google for Education is one type of all-inclusive system incorporating applications and an email system to prepare students for real-world experiences (Bray, 2016). Other LMSs used in classrooms include Canvas, Moodle, Blackboard, and Seesaw. These LMSs are designed for collaborating with students, organizing lessons and student work, and acting as an e-portfolio. Google Classroom allows for integration of the Google Suite, which most other LMSs do not. GSFE has a variety of applications that students and teachers use for organization, document creation, and online research. The integration of GSFE allows teachers to give elementary students assignments that use applications, advancing their technology skills for the future.

By integrating digital learning, educators have an important task to carry out. Teachers give students access to resources, provide opportunities for education across the globe, and give students a chance to expand their viewpoints (The Economist Intelligence Unit Ltd., 2015). The cross-curricular digital learning integration can only occur by purposeful and watchful structure, and by giving access to the individuals who need it most (The Economist Intelligence Unit Ltd., 2015). As educators collaborate, planning is involved, which allows for student success. Unchanneled, innovation can basically extend balance by offering more open doors for progression to the individuals who can take advantage of the opportunities (The Economist

Intelligence Unit Ltd., 2015).

Social Context

Technology is an integral part of society and technology integration in classrooms is essential to educating students (Agyei & Keengwe, 2014). Technology must be used as an educational tool because students will be using technology in their educational careers and throughout most of their lives (García-Peñalvo et al., 2017). Preservice teachers are taught to integrate technology in their classrooms to teach students. At times, technology integration is difficult due to multiple barriers. Some of the barriers that cause technology integration to be a struggle for educators include connectivity issues, number of resources, differing skill levels, misuse, insufficient access, institutional barriers, and time (Conley, 2010).

Technology in the classrooms today consists of creating podcasts, designing videos using a green screen, scanning quick response codes, researching using WebQuests, engaging in online games, and using a variety of applications to learn new content. Educational programs are also used to engage students. Some of these programs include Success Maker, Study Island, Epic!, Case 21, and Zearn Math. Teachers use LMSs to virtually engage students and track content. Google Classroom LMS integration into the everyday learning experience has impacted students and teachers around the world (Bray, 2016). The use of Google Classroom has many benefits, including quick turnaround on grading, digital assignments, tracking of student work, and assisting teachers and instructors with their work evaluations (Brown & Hocutt, 2015; Heggart & Yoo, 2018; Peacock & Grande, 2016).

Integrating technology and using an online LMS can be difficult when multiple stakeholders are involved (Islam, 2014; McGill & Klobas, 2009; Walker, Lindner, Murphrey, & Dooley, 2016). Socially, teachers are expected to integrate technology in the classroom and

prepare their students for technological advances. Consequently, teachers feel pressured to

constantly evolve their teaching styles and stay current on the researched practices (Kersey,

2016). Educators find maintaining their daily job expectations, while advancing themselves, to

be difficult and tedious. Superintendents, district leaders, administrators, teachers, students, and

even parents are affected by the new technology initiatives (Mueller & De Groot, 2011; Thomas,

2016). Furthermore, superintendents and district leaders want educators to be prepared for the

implementation of technology in the classrooms (McLeod, Richardson, & Sauers, 2015).

Administrators are required to follow district and state requirements (McLeod et al., 2015).

Teachers want to follow the guidelines of the school system and their own administrators

(McKnight et al., 2016). Finally, students also feel the need to stay up to date and be engaged

(Balta & Duran, 2015; Heflin, Shewmaker, & Nguyen, 2017).

Theoretical Context

Discovery learning theory was used to establish that learning means cognitive growth

through interaction with the environment (Alfieri, Brooks, Aldrich, & Tenenbaum, 2011).

Discovery learning theory is an inquiry-based, constructivist learning theory that is demonstrated

in problem-solving situations when the learner draws on his or her own experience and existing

knowledge to discover facts, relationships, and new truths to be learned (Mayer, 2004). To apply

the theory of discovery learning, teachers who have experienced the transition to Google

Classroom have assisted in creating additional knowledge based on what educators understand

and how they apply their learning in their own classrooms. Discovery learning theory is best

suited for framing the current study because this study's focus is an inquiry-based, constructivist

learning experiences of teachers themselves, demonstrated in problem-solving situations. The

teachers as learners draws on their own experiences and existing knowledge to discover facts,

relationships, and new truths to be learned and applied in integrating technology into their classroom (Bruner, 1961). Discovery learning theory is the most appropriate for this study because teachers are using their experiences to discover new meaning related to the phenomenon Google Classroom. Discovery learning theory connects to the study because the theory encourages active engagement by allowing educators to interact with the technology (Bruner, 1960). Discovery learning theory promotes autonomy, responsibility, and independence through creative problem-solving (Bruner, 1977). Critics believe that discovery learning theory can create cognitive overload for individuals who are trying to problem solve (Mayer,2004). At times, there can be misconceptions when the content is not clarified.

Situation to Self

The inspiration for conducting this study came from my daily work with teachers in my role as an instructional technology facilitator (ITF) and reflects my desire to understand the experiences teachers are having with Google Classroom. The research site was in the district of my employment. Establishing a rapport and trusting relationship with the teachers enabled me to collect data with no bias or pressure. Furthermore, I am not in a supervisory role, which could have caused participants to feel threatened in this study. The participants understood their employment could not in any way be impacted negatively through this study, and they were free to withdraw at any time during the study.

Some educators are eager to transition into technologically advanced classroom settings, while others resist these changes. My work with teachers has illustrated that many are hesitant to implement best practices in technology integration due to inexperience, minimal knowledge, and lack of understanding (Wright, 2015). For example, when teachers find a specific technology overwhelming or frightening, they are unlikely to incorporate that technology into their

curriculum (Conley, 2010). Scholars have noted that just as teachers begin to understand one technological tool, they are often told by administrators or the district that it is time to learn a new one (Schuck, Aubusson, Buchanan, Varadharajan, & Burke, 2018). Through this study, I was seeking to understand the reasons behind trends including resistance to technology integration and using technology to teach content in multiple Google Classrooms in one school district.

Embedded in the philosophical assumptions of the study was the understanding of the world in which I live and work, and as noted by Creswell and Poth (2018), the development of multiple meanings in which I, as the researcher, looked for complexity of viewpoints. The philosophical assumption for the study was to recognize perspectives other than my own and focus on developing a variety of viewpoints (Lantolf & Johnson, 2007). Ultimately, the goal of the research was to meet the needs of teachers and students. As technology advances rapidly, focusing on adjusting instructional practices to meet the needs of teachers and students becomes more of a priority. I have strong axiological philosophical assumptions related to remaining relevant and meeting the needs of students through differentiation. I also have this axiological philosophical assumption because I believe it is necessary for teachers to continually improve themselves and evaluate their own views as educators in order to be a lifelong learner themselves (Quendler & Lamb, 2016).

Problem Statement

North Carolina elementary teachers have been attempting to integrate technology within their classrooms, using applications like Google Classroom. A lack of training and continued support impacts teacher integration of technology, specifically Google Classroom, in a negative way. The problem in this study was North Carolina elementary teachers' difficulties integrating

technology, using applications like Google Classroom, along with more traditional curriculum and instructional strategies. Furthermore, a gap was found in the literature addressing this problem. Therefore, in this study I examined North Carolina elementary school teachers' perceptions of Google Classroom technology integration as lived experiences. School districts could benefit from this study by learning the positive contributions, successes, and challenges of using LMSs such as Google Classroom at the elementary level. Moreover, results from this study address the gap in the literature related to this problem.

While some research exists on teacher perceptions of technology integration, in-depth research studies are not prevalent on teacher perceptions of Google Classroom. Many studies have been conducted on Google Classroom and its use in the classroom (Cortez, 2017; DiCicco, 2016; Iftakhar, 2016); however, extensive research does not exist on teacher experiences and their perceptions of technology integration using Google Classroom at the elementary level. Present research does not focus on teachers' experiences but on the usability of the LMS such as how they used it as a portfolio for student work (Cortez, 2017; DiCicco, 2016; Iftakhar, 2016). For example, a previous study that was focused on using Google Slides to teach social studies to students with disabilities was concentrated only on the use of Google Slides, rather than the impacts of using the actual application (DiCicco, 2016). Other studies were focused on the usability of Google apps and Chromebooks (DiCicco, 2016).

While the usability of applications and an LMS are important, equally important is understanding how using an LMS such as Google Classroom has impacted classroom instruction. When teachers read about others who have had similar experiences, influential learning can take place and be applied to using LMSs in their own classrooms (Anand & Sharma, 2014). Additional research on the topic of Google Classroom allowed for smoother

transitions when adding content online (Anand &Sharma, 2014). Additional research illuminated ideas of problem areas that need more support from district leaders (García-Peñalvo et al., 2017). By failing to provide teachers with adequate support through professional development (PD), teachers are underprepared for technology integration.

Little research exists that focuses on teachers' experiences with Google Classroom. Many studies have been focused on specific applications (Blank et al., 2012; Layton, Cady, & Layton, 2017; Papadakis et al., 2018) or bringing digital devices into schools (Penuel, 2006; Sahin et al., 2016). These studies generally suggested that digital devices make daily organization and teaching easier, along with exposing students to applications they will use in their daily lives. Furthermore, only one study (Brown & Hocutt, 2015) focused on Google apps for education and their usability has been conducted at the college level, and a limited number of phenomenological studies specific to elementary level have focused on Google Classroom. In order to provide support for educators, teachers' experiences must be the focus of research to help others better understand teachers' successes and difficulties. Teachers' experiences are invaluable because they are the individuals developing content and utilizing LMSs daily. Understanding the support needed for the implementation process is imperative.

According to Vatanartiran and Karadeniz (2015), "Traditional school cultures are challenged with the invasion of technology into school settings, sometimes mandatorily from top to bottom" (p. 216). Technology integration is a requirement in many of the Common Core Curriculum Standards in the regular education classroom (Pittman & Gaines, 2015). Researchers have shown many schools have become one-to-one (1:1), with each student having a technology device and daily lessons involving technology integration (Bebell & O'Dwyer, 2010). By giving educators resources without proper training, administrators create scenarios in which technology

integration becomes a difficult task.

This present study was created to fill a gap in the literature because it narrowed the focus from all Google applications and the Chromebook used on all academic levels to elementary teachers' experiences with the application called Google Classroom. Currently, limited research exists giving a voice to teachers who are using this LMS in their classrooms. Furthermore, teachers are using the application design in a pilot structure rather than being trained beforehand. They implement the technology in their classrooms through trial and error rather than being fully trained on the digital tools (Google Inc., 2015a). The data gleaned from this study were used to investigate how North Carolina elementary teachers have used Google Classroom to teach their curriculum and the study can be used to find ways to adequately support teachers in the process of technology integration.

Purpose Statement

The purpose of this transcendental phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. The theory guiding this study was the discovery learning theory by Bruner (1961), which focuses on learning through interaction with the environment. The central phenomenon in this study was teachers' perspectives of and experiences with Google Classroom. Teachers help students learn by guiding them to utilize technology in the classroom. By collecting teachers' perspectives, I gave them a voice in the integration process, identified specific areas where support is needed, and documented ways in which teachers have already been utilizing the LMS in their classroom to teach the content.

Significance of the Study

This study is significant because the study addresses the gap in, and contributes to, the

existing body of research on understanding elementary teachers' perspectives of and experiences

with integrating technology, specifically Google Classroom. In addition, this research extends

beyond existing research on teachers' perspectives of and experiences with technology

integration because it served to explore the need for comprehending elementary school teachers'

perspectives using Google Classroom.

Empirical Significance

This study contributes to the body of literature on technology integration using

professional development (Beriswill, Bracey, Sherman-Morris, Huang, & Lee, 2016).

Professional development is offered to educators to advance their skills in curriculum-specific

areas. Specifically, the study contributes to other studies by identifying best practices for

transitioning from the traditional model to a blended model with technology integration (Powell

et al., 2015). Ahlfeld (2017) focused on using Chromebooks in the classroom and found

technology integration assisted with increased student engagement. Additionally, in a study on

the integration of Google applications Bray (2016) showed students were able to track their

progress, and teachers were able to give real time feedback. Christensen (2002) focused on the

effects of digital learning on the mentalities of educators and understudies. The results showed

needs-based technology integration in education fosters positive attitudes toward information

technology (IT) among elementary school classroom teachers.

Additionally, the current study relates directly to the literature on integrating technology

in the K-12 classroom (Desimone, Porter, Garet, Yoon, & Birman, 2002). The results provide

school districts with research on how to assist teachers with transitioning from the traditional

classroom to the blended classroom (Vouk, 2008). The findings will assist in determining how

teachers' experiences have impacted curriculum development and teaching using Google

Classroom. The results assist in identifying the best ways to support teachers who are struggling. Struggling teachers can benefit from learning how to implement an LMS as part of teaching and learning in elementary classrooms and gain additional support from others. Teachers who struggle with technology integration using Google Classroom can benefit from the findings of the study by learning how to implement technology in their classroom and gain additional support from educators who have prior experience with Google Classroom.

Theoretical Significance

Teachers who have experienced the transition to Google Classroom build additional knowledge based on what they presently understand and how they apply that understanding to their new understandings. To add to research related to the theory of discovery learning, this research provides feedback about how teachers interact with their environments, especially the virtual classroom. Few studies have been conducted using discovery learning theory relating to teacher perceptions of and experiences with integrating technology into their classrooms, specifically Google Classroom within the elementary learning environment.

In utilizing the theory of discovery learning as the theoretical framework, the data collected for the study were analyzed in terms of how teachers interact with their environments, especially the blended classroom with integrated technology. At this time, few studies have been conducted using discovery learning theory relating to teacher perspectives of integrating and implementing technology, specifically teachers who are using Google Classroom within the elementary learning environment. This study was focused on teachers who have transitioned to Google Classroom to determine if they are able to build additional knowledge based on what they understand and how they apply their current knowledge to their new understandings.

Practical Significance

The study is significant to elementary education because it highlighted how teachers integrated new technology as they transitioned into using Google Classroom. The study served to investigate how teachers are using Google Classroom to teach the curriculum and potentially give examples of lessons. Technology can be valuable and must be utilized properly to help students become globally competitive (García-Peñalvo et al., 2017). This study encompassed a fresh perspective on Google Classroom and its impact on classroom instruction (Ertmer & Ottenbreit-Leftwich, 2010).

The study enables administrators, teachers, coaches, and ITFs to understand the process of integrating Google Classroom in the elementary environment in more detail by providing detailed teacher perceptions of and experience with new technology integration, specifically Google Classroom. Teachers utilize Google Classroom for organization, technology integration, and scoring students' assignments (Ventayen et al., 2018). Teachers have recently experienced using Google Classroom in their own classrooms through the implementation of 1:1 technology devices (Weaver, Spratt, & Nair, 2008). According to Weaver et al. (2008), individuals feel confident in their actions when they become familiar with the processes of Google Classroom. On a wider scale, educators across the world may gain an understanding of others' perspectives and apply this knowledge to their own lives (Epley, 2014). This study included review of the specific aspects of technology integration, particularly Google Classroom, and provides effective ways to support teachers in technology integration, as well as assessment of which aspects of technology integration are most helpful. The results of this study are beneficial to the North Carolina Department of Public Instruction by encouraging stakeholders to create digital learning standards with the potential to impact effective curriculum implementation.

Research Questions

This study of the lived experiences of North Carolina elementary school teachers who have integrated technology using Google Classroom was guided by one central research question and three research sub-questions.

Central Research Question

What are North Carolina elementary teachers' perceptions of the ways in which Google Classroom technology integration impacts classroom instruction?

This question was developed to help me comprehend teacher perceptions of Google Classroom. Furthermore, answers to this central question resulted in emerging patterns and themes revealing the essence of teacher perceptions of using the application. The goal of the question was to help me further understand elementary school teachers' experiences with Google Classroom to teach curriculum in North Carolina (Weaver et al., 2008).

Research Subquestions (SQs)

SQ1: What are North Carolina elementary teachers' perceptions of the ways Google Classroom technology integration impacts student understanding of content?

This subquestion addressed how teachers have implemented new technology in the form of Google Classroom in order to teach the curriculum. The question served to investigate the variety of ways teachers have used the LMS to enable students to understand content. The feedback from this question provided valuable information for other educators to utilize in their own practice. Agyei and Keengwe (2014) suggested that utilizing the technological pedagogical content knowledge (TPACK) theoretical model would allow teachers to develop lessons that increase student engagement and enhance learner-centeredness.

SQ2: What are North Carolina elementary teachers' perceptions of the effectiveness of

professional development (PD) provided to support their ongoing use of Google Classroom?

Supporting educators is accomplished by administrators providing professional development for teachers, guiding them through the instructional process, and reassuring them that they are on the right track. Through SQ2, I sought to gain an understanding of exactly how the teachers were supported and what was done to support them. This information allowed for improvements for future implementation of Google classroom. Agyei and Keengwe (2014) suggested that teachers who are adequately prepared for integrating technology are likely to lead in technology reform. Providing administrators and teachers an understanding of the best support methods and types of helpful support gives input in advancement related to digital learning in the classroom.

SQ3: What are North Carolina elementary teachers' perceptions of the ways their attitudes impact technology integration using Google Classroom?

The focus of the final sub-question provided an opportunity for teachers to describe their attitudes based on their experiences with Google Classroom. Previous research suggests a correlation between educators' attitudes about technology integration and successful implementation. Positive teacher attitudes toward computers are widely recognized as a necessary condition for effective use of IT in the classroom (Balta & Duran, 2015). The goal of SQ3 was for me to gain insight and to understand teachers' points of view.

Definitions

1. *Attitudes-* Attitudes are feelings or responses of individuals, whether favorable or unfavorable, which reflects their thoughts (de Souza Barros & Elia, 1997).

2. *Experiences-* Experiences are real-world practices, encounters, or a person being involved in a process (Hansen, 2000).

3. *Google Suite for Education (GSFE)-* GSFE is Google's suite of free productivity tools provided, without ads, to K–12 and higher education institutions around the world also known as (G Suite) (Google, 2018b).

4. *Google Classroom-* Classroom is a free web service for schools. The LMS allows educators to digitally create and manage assignments while providing digital feedback to students. Classroom makes learners and instructors connect easier—inside and outside of schools (Google, 2018a).

5. *Interaction-* An interaction is an event when individuals or things communicate or react to each other (Reinke, Herman, & Newcomer, 2016).

6. *Support-* Pertinent to this study, support is assistance provided through professional development or through informal learning opportunities (Kent, 2004).

7. *Technology integration-* Technology integration is when teachers utilize digital learning within the classroom to teach curriculum and different topics (Pierson, 2001).

Summary

The purpose of this transcendental phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. The study was focused on North Carolina elementary teachers' experiences with Google Classroom. By sharing their experiences, teachers discussed how they have impacted student learning. Teachers within different disciplines can collaborate and discuss content activities they have used to teach the curriculum. Educators can give others a chance to understand the difficulties they are facing such as information retrieval, transferring older content, and navigation of a new LMS. Through the discussion of these difficulties, other educators can problem-solve adequately. Educators can share how they have adjusted to the

virtual LMS Google Classroom and share what support is needed.

The theory guiding this study was Bruner's (1961) discovery learning theory, which is focused on learning through interaction with the environment. Students interact with technology by completing virtual projects online with teacher guidance. Within their online classroom, students are provided teacher-assigned curricula that engages and assesses student learning. Educators utilize the LMS for organizing lessons and classroom records, integrating technology, and scoring students' assignments. Schools across the nation have implemented 1:1 technology devices in their classrooms to prepare students to become globally competitive. Through the data from teachers' experiences, school systems and software developers can make advancements with the LMS to improve teacher preparedness, curriculum integration, and differentiation.

CHAPTER TWO: LITERATURE REVIEW

Overview

In Chapter Two the theory framing this study is presented, followed by a review of relevant literature. Topics included in this review are technology integration, Google applications, LMSs, and a comparison between Google Classroom and other LMSs, and finally Chromebooks. The summary is focused on the gaps in literature and central themes in the research.

Theoretical Framework

Bruner's (1961) discovery learning theory, which stemmed from Dewey's (1922/2009) constructivist approach, served as the theoretical framework for this study. Bruner's (1961) discovery learning theory was used to frame this current study because of its emphasis on the construction of knowledge through discovery, training, and integration of application. Within the theory, two features are directly applicable to the study. First, discovery learning is used as an extension of the broad theory of constructivism and focuses on everyone as individual persons (Dewey, 1922/2009). Second, discovery learning serves to facilitate and provide boundaries to the way people learn (Bruner, 1961). Educators actively discover new resources by integrating technology in their classrooms through trial and error. The discovery learning theory sets the stage for educators as they learn and construct new knowledge.

Teachers as learners must be willing to use their natural curiosity to develop their classroom curriculums and activities for technology integration (Agyei & Keengwe, 2014). Along these lines, Bruner (1961) encouraged teachers to build a structure of knowledge, sequence their progress, and maintain their motivation. For teachers to build structures of knowledge in the area of focus for this study, they must become familiar with the LMS, Google

Classroom. Educators outline their course material as they develop it to sequence their progress. They create activities that align with their curriculum to make sure all content is covered. As teachers' understanding of and interaction with the LMS Google Classroom improves, they feel successful and more motivated. Teachers discover new information as they take part in the curriculum development process. Discovery learning theory is applicable to this study because it allows teachers to work through their technology problems and share their perspectives of the experience.

Bruner (1961) demonstrated specific stages of learning through the three principles associated with discovery learning theory. The first principle is that instruction must be concerned with the experiences and contexts that make the learner willing and able to learn. This principle is known as *readiness*. Teachers demonstrating readiness are willing to use the LMS Google Classroom and are not resisting the integration of new technology. The second principle proposes that instruction must be organized so it can be easily understood by the student; this is known as *spiral organization*. The educator prepares the content in an organized manner and then creates online assignments for students to complete. The third principle is *instruction*, which should be created to foster investigation of the content and expound on the information that is provided in order to assist with the missing pieces (Bruner, 1961). After the lesson has been taught and the students participate in these activities, the teacher actively reflects on how the students have understood the content. The teacher also reflects on the instruction of the content using Google Classroom. These three principles guide the learning process of discovery learning theory applied to technology integration.

Bruner (1961) identified six indicators that reveal cognitive growth and development. First, responding to situations in varied ways, rather than always in the same way encourages

development of critical thinking skills. Second, internalizing events into a storage system that corresponds to the environment allows for making connections with better understanding. Third, an increased capacity for language and new vocabulary facilitates better understanding in all areas. Fourth, systematic interaction with a tutor provides help with reviewing skills and a broader understanding. Fifth, using language as an instrument for ordering the environment is important in measuring cognitive growth. The sixth and last indicator is an increased capacity to multitask with multiple demands, which allows the learner to accomplish tasks more quickly.

Discovery learning theory is directly applicable to the current study because it supports active engagement of the learner in the learning process, fosters curiosity, and enables the development of lifelong learning skills. Discovery learning also allows for a personalized learning experience, provides high motivation because learners can experiment, and builds on the learner's prior knowledge and understanding (Thorsett, 2002). However, discovery learning theory has potential disadvantages because it can confuse the learner if no initial framework is available, and can be inefficient and time consuming, which often leads to frustration. The disadvantage of no initial framework causes individuals to develop a framework on their own (Thorsett, 2002). Due to being inefficient and time-consuming, a problem is that people do not want to spend time discovering information. Individuals would like to be shown the process rather than wasting time problem solving (Thorsett, 2002). To avoid discouragement, educators can be provided with support and training to minimize time-consuming aspects of technology integration. Frustration can be clarified when the learners are able to make progress and feel successful instead of becoming overwhelmed with trying to discern what they are supposed to learn.

Related Literature

Teachers' experiences with integrating technology while utilizing an online management system known as Google Classroom was the focus of this study. Becoming familiar with new tools in the digital age can be a difficult task for teachers today (Aldunate & Nussbaum, 2013). Teachers are required to be more advanced than simply putting a test online for technology integration or requiring students to type a paper. Transitioning into the digital age can be difficult for technologically challenged individuals when assignments are online, the curriculum consists of videos, and online applications are used for producing work (Brown & Hocutt, 2015). Teachers have difficulty transitioning to using an LMS such as Google Classroom and finding the best practices for implementation. Scholars have recently conducted studies involving technology integration in educational settings (Ahlfed 2017; Barger, Hofer, & Johnson, 2017; Bebell & O'Dwyer, 2010). In the following sections encompass the literature review of related studies and discussion of multiple aspects of technology integration. Specific related topics are teachers' integration of new technology, the GSFE, and Google Classroom and integrating it as a specific part of G Suite, a comparison of LMSs other than Google, plus a look at Chromebooks as a specific type of hardware.

Teachers and New Technology Integration

While teachers are responsible for integrating technology into their classrooms based on the standards of the U.S. Department of Education, they experience technology integration differently based on their training, support, and current knowledge (PBS Learning Media, 2013). Administrators expect teacher to adopt new technology, plus facilitate and support the teaching–learning process in the classroom and also to have an impact on the quality of the teaching experience (Aldunate & Nussbaum, 2013). Technology integration has an emphasis on teacher

training and PD (Lawless & Pellegrino, 2007). For example, preservice teachers are required to take classes on instructional technology during their college experience. Current teachers are also expected to participate in PD courses that provide credits to keep their teaching licenses up to date. As teachers attend classes and trainings, they learn about new technology integration practices to take back to their classrooms (Aldunate & Nussbaum, 2013).

Teachers who are early technology adopters and commit a significant portion of their time to incorporating educational technology into their teaching are more likely to adopt new technology, regardless of its complexity (Christensen, 2002). However, teachers who are not early technology adopters and only commit a small portion of their time to integrating educational technology are less likely to adopt new technology and are prone to abandoning the adoption at identified points in the process (Aldunate & Nussbaum, 2013). Teachers' beliefs about the nature of knowledge, learning, and effective ways of teaching are related to their technology integration practices (Kim, Kim, Lee, Spector, & DeMeester, 2013).

In a study of school teachers' willingness to adopt new technology, Aldunate and Nussbaum (2013) found the process of adopting technology is qualitatively different depending on the type of technology being adopted. In the teacher technology adoption process, more complex technology, from a user's perspective, has a greater chance of leading to abandonment than does simpler technology. Early adopters exhibit a higher likelihood of adopting technology, almost separate from the level of complexity of the technology. Aldunate and Nussbaum emphasized the absence of innovators and early adopters in a group negatively impacts the likelihood that other teachers in the group will adopt technology. Teachers' beliefs, attitudes, and training greatly impact the integration of new technologies in the classroom.

Google Suite for Education (GSFE)

One type of technology teachers can integrate is the GFSE. Formerly known as Google

Apps for Education, GFSE is a suite of hosted communication and collaboration applications that

requires no new software or hardware and is free for accredited, nonprofit schools (Google,

2018b). "The educational organization signs up on Google's Web site with proof of education

status and the participants get access to multiple applications" (Oishi, 2007, para. 1). The GSFE

offers communication applications, collaboration, and infrastructure (Google Inc., 2018a;

Herrick, 2009).

The GSFE has several applications that support communication. These applications

include Gmail and Google Calendar, which allow for room and resource scheduling, multiple

calendars, and mobile access (Google Inc., 2018a). Google Talk is another communication tool

that allows for instant messaging, free calling, voicemail, and file transfer. To communicate

effectively, educators use the G Suite applications. The apps allow parents to connect quickly

with teachers to get updates about their children. Students also have easy access to contact their

teachers if any problems arise.

Google Classroom, Google Docs, and Google sites are applications that support

collaboration in and out of the classroom for teachers, students, and parents. Teachers use

Google Classroom as an LMS to share content. Google Classroom is used by teachers to share

activities and teach curriculum. Google Apps incorporate word processing, spreadsheets, forms,

and presentations. Students can collaboratively create websites and add in videos, images, and

documents by using Google Sites and Google video (Google Inc., 2018a; Gulati, 2011).

Teachers can utilize these apps to organize information on their own websites (Google Inc.,

2018a). Through teacher created videos, students can refer to the content they have been taught.

Many school systems have utilized the GSFE for several years. In a case study

conducted by Google Inc. (2016c), Jeff Davis County Schools modernized their rural school

district with GSFE and Chromebooks. The case study showed the ease of using Google apps

reduced staff technology training because many of the staff members were already familiar with

the apps. The original decision to move to Google apps came from teachers and staff

themselves, many of whom already owned Android phones and used Google Apps daily (Google

Inc., 2018c). The teachers in Jeff Davis County are now utilizing these applications in the

learning environment for academics and even on the baseball field to document pitchers' speeds

in Google Sheets (Google Inc., 2016c). Teachers are also giving real-time feedback, utilizing

Google Forms for assessment, and offering limitless educational content to their students

(Google Inc., 2016c). Past research from Google Inc. (2016c) demonstrated that when teachers

are already familiar with technology, they are more likely to integrate that technology into the

classroom. Many programs and applications focusing on technology integration have not been

successful due to the mismatch between the educational change and teacher knowledge of the

applications (Tondeur, van Braak, Ertmer, & Ottenbreit-Leftwich, 2017). When educators are

familiar with the technology, they are more likely to adapt it in their classroom settings.

Teachers, students, and parents can think of ways in which they use the applications in their daily

lives and then apply those ways to the academic setting (Tondeur et al., 2017).

GSFE and Google Apps create authentic learning experiences in the classroom by

providing a platform through which students can co-create resources, documents, and tools,

share their learning, and respond to the learning of others (Hostrup, 2015). Educators see student

edits and collaborate in real time with students. As students make changes to their documents,

the educators can follow their progress and access work from any device at any time. Editing in

real time allows for flexibility in responding to student needs and gives students immediate

feedback. Staff members can collaborate and communicate quickly to create cross-curricular

content (Hostrup, 2015). Collaboration between students and staff can often be recognized as

helping others (Webel, 2013). Instead of thinking of collaboration as helping, students can think

of collaboration to gain ideas, attain more strategies to problem solve, and build knowledge

collectively (Webel, 2013). The GSFE has created many opportunities for students, teachers,

and parents to collaborate effectively that would not normally occur without real-time

communication.

   Benefits of G Suite for teachers. The GSFE has allowed teachers to collaborate to

create resources and organize their materials. Google Drive, which is part of the GSFE, allows

teachers to have all their lesson materials online in a safe place that is organized. They no longer

must spend hours hunting through file folders. Teachers can use the content repeatedly and

easily to create new materials from existing ones. They can turn the units they teach during the

year into a Google Site (Hostrup, 2015). Teachers can place the files, documents, and

presentations on one specific site and then students can access the information. Teachers can

give real-time feedback on the students' work.

   Discovering teachers' experiences is an important method of learning about how Google

Apps are being utilized in education. Schuck et al. (2018) focused on teachers' lived experiences

with integrating Google Apps and Chromebooks into the core curriculum. The study included

13 core content teachers in Grades 4 through 8, and Schuck et al. found reoccurring themes,

including positive attitudes that increased with use over time, as well as an increase in student

learning and motivation. Conversely, they also found consistent wireless connectivity issues,

difficulty accessing Chromebooks due to limited availability, and lack of support with

inconsistent professional development (Schuck et al., 2018). Schuck et al. believed more studies

must be conducted to assess the lived experiences of teachers who took part in the

implementation process of utilizing specific Google applications and the process for engaging

with their students to gain a more in-depth understanding of technology integration.

   Benefits of G Suite for students. Through the implementation of the GSFE, Edmonton

Public Schools in Canada experienced an increase in learning engagement, enhanced

collaboration among students and teachers, and students were able to have modern learning

technologies (Google Inc., 2015a). Initially, the district offered school-hosted email accounts

and client productivity software to staff and teachers, but most of the district's 80,000 students

lacked access to online collaboration tools at school and at home (Google Inc., 2015a). By

gradually expanding the GFSE to all schools in the district, students were able to access learning

tools from various locations and work on their projects from home (Google Inc., 2015a).

Students' creativity was sparked and a boost occurred in their enthusiasm in relation to learning

(Google Inc., 2015a). Edmonton Public Schools' administrators and teachers saw an increase in

students collaborating on projects and coordinating times to work on their assignments together

(Google Inc., 2015a). For organization purposes, students create resources and organize their

assignments in folders. By creating new resources and keeping them organized, students work

toward a better education (Google Inc., 2011).

   Another study was conducted with the Jesuits, which is a religious congregation founded

by Ignatius of Loyola. The Jesuits have 68 coeducational charter schools throughout Spain and

are currently educating 75,000 students, in all education stages. During 2014, three of the

schools made a determined commitment to go one step further in the digital education of their

students, providing them with Chromebooks for their schooling (Google Inc., 2011).

The charter schools wanted to get 21st century education for 21st century students. They wanted students to develop digital competencies, and they wanted to improve students' learning (Google Inc., 2015a). To accomplish these tasks a new cloud-based educational strategy with Chromebooks, integrated GSFE, was implemented (Google Inc., 2015a). The schools started a program to provide every student with a Chromebook for their day-to-day student life. In the schools, students became motivated and interconnected when creating their assignments (Google Inc., 2015a). The students improved their digital skills and their academic life management became simplified (Google Inc., 2015a).

Benefits of G Suite for parents. The GSFE has benefits besides focusing on students and educators. Google Inc. (2017) conducted a study with the school system in Bombay, New Zealand to incorporate GSFE to prepare their 384 students for the 21st century and to communicate with the students' parents. The school only had 15 computers to educate all of their students. The staff always printed the information they wanted to send to parents on paper. Parents initially resisted the changes. The parents had to be made aware of how the GSFE and Chromebooks would help with communication and monitoring of students work (Google Inc., 2017). Parents were shown how they could track their child's blogs, assignments, and homework (Google Inc., 2017). By hosting parent nights at the school, schools taught parents that the GSFE could help improve students' education and help to keep them more informed about their child's progress (Google Inc., 2017). Parents now have access to their children's work through shareable links where they can see their student's progress (Google Inc., 2018a). Through the GSFE, teachers shared summaries of student performance with their students' parents. Parents were also enrolled to receive automated email summaries of class announcements and student work (Google Inc., 2018a).

To assist with parent engagement, the Bombay school transitioned from the original printed four-page newsletter to a digital format (Google Inc., 2017). Within the digital parent communication newsletter, the school included stories about collaborative teaching, flexible learning spaces, and videos of student work (Google Inc., 2017). Surveys were also created and embedded into the newsletter to allow parents to have input in their child's education by giving feedback. Many digital features in the GSFE encourage parent communication between students and teachers. By implementing the GSFE, parents and students have a way in which they can collaboratively contribute together (Hostrup, 2015). Keeping the parents aware of what is happening at the school will continuously encourage involvement in their students' education.

Google Classroom

One specific part of the GSFE is Google Classroom, considered one of the best platforms used by teachers for enhancing workflow. Google Classroom is included in the GSFE and provides a set of powerful features that make it an ideal tool to use with students. Google Classroom helps teachers save time, keep classes organized, and improves communication with students. Google Classroom is available to anyone with GSFE, which includes a free suite of productivity tools including Gmail, Drive, and Docs (Educational Technology & Mobile Learning, 2015; Google Inc., 2018c; Keeler & Miller, 2015). In its first 6 months of existence, Google Classroom managed to host over 30 million assignments turned in by teachers and students. Such numbers indicate Google Classroom is widely endorsed within the educational community (Educational Technology & Mobile Learning, 2015; Google Inc., 2018c). Google Classroom is meant to help teachers manage the creation and collection of student assignments in a paperless environment, leveraging the framework of Google Docs, Drive, and other Apps. Google Classroom allows teachers to spend more time with their students and less time on

paperwork. Functionality is provided through the ability to add more than one teacher, as well as

to prepare for classes in advance (Chehayeb, 2015; Crawford, 2015; Google Inc., 2018c; Janzen,

2014; Keeler & Miller, 2015).

In a recent study, Ballew (2017) analyzed a school district's Google Classroom

integration, which included three different grade levels across the district. Ballew measured via a

voluntary Likert scale survey teacher perceptions regarding the Google Classroom and its effects

on the classroom. Ballew aimed to determine whether teachers' years of experience, grade-level

assignment, and subject matter influenced their perceptions of the technology-based Google

Classroom. Ballew determined, in the quantitative study, a correlation existed between the

variables of years of experience, grade level assignment, subject matter, and teachers' perceptions of

the technology-based Google Classroom. Ballew's conclusion found teachers who had more years of

experience were less likely to incorporate technology into the classroom because they were

unfamiliar with the technology and that was not the way they had been taught when they were in

college.

In another study focused on teachers' perceptions of effectiveness of Google Classroom

in higher education, Azhar and Iqbal (2018) assessed teachers' perception on the effectiveness of

Google Classroom, using semistructured interviews. The study participants consisted of 12

higher education teachers who implemented Google Classroom for at least one semester in their

classroom (Azhar & Iqbal, 2018). The analysis of the interviews from the study revealed Google

Classroom had not made a significant impact on classroom teaching in Pakistan (Azhar & Iqbal,

2018). However, the participants did use Google Classroom effectively for uploading

assignments, classroom management, and communication with students. The use was limited to

just those basic features. The teachers in the study did not view Google Classroom as user-

friendly due to difficulty with using video streaming and other additional features.

Al-Maroof and Al-Emran (2018) examined the factors that affect the students'
acceptance of Google Classroom at Al Buraimi University College (BUC) in Oman. Al-Maroof
and Al-Emaran concluded all the factors are significantly effective in terms of both the
behavioral intention and the usage of Google classrooms. Al-Maroof and Al-Emaran found
Google Classroom to be both useful and easy to use by higher education students. The
undergraduates at BUC found Google Classroom worked as a facilitator to assist with their
learning activities (Al-Maroof & Al-Emaran, 2018).

Google Classroom itself is not necessarily available to learners without access to an
educational institution. According to Iftakhar (2016), Google Classroom's design focuses on
giving an overview of the components of Google Classroom. The design utilized in the web-
based program is focused on giving an overview of the components of Google Classroom. These
components include documenting student work, collecting student assignments, and distributing
directions for assignments. Iftakhar described Google Classroom as a method that could be used
with managing assignments and other important documents teachers utilize every day in a
paperless environment. A paperless environment is beneficial for teachers because it decreases
the time spent making copies, helps with organization, and creates a digital portfolio of student
work that teachers can easily reference.

One of the major reasons to utilize Google Classroom is cost. Google Classroom is free
for educational institutes, and the best-in-class security is also included without cost for plan
holders. The LMS Google Classroom also integrates Google Docs, Drive, and other applications
(Iftakhar, 2016). Iftakhar (2016) found four major benefits based on his participants' feedback.
Google Classroom can streamline communication and workflow for students (Iftakhar, 2016).
Second, Google Classroom can help students keep their files organized because all of their work

is organized in their Google Drive (Iftakhar, 2016). Third, educators can quickly pinpoint which students are having difficulty with assignments based on tracking features (Iftakhar, 2016). Finally, the process for grading is easier because of the grading feature connected with student submissions (Iftakhar, 2016).

Google Classroom is accessible on mobile devices, tablets, laptops, and desktops. Providing mobile access to learning materials that are attractive and easy with which to interact offers a critical way to stay connected in today's world (Janzen, 2014). Giving students the opportunity to complete work from virtually anywhere enables teachers to implement blending learning in the classroom with Google Classroom. Organizations that practice blended learning utilize the platform as a tool for use inside and outside the classroom (Ventayen et al., 2018).

Google Classroom has been evaluated for usability and is considered useful in understandability, attractiveness, and operability (Ventayen et al., 2018). The platform is useful in both nonacademic activities and with academic assignments when students are learning through collaboration (Ventayen et al., 2018). Usability of the tool Google Classroom, for composing music may result in what Norman (2005) described as a "positive affect [that] arouses curiosity, engages creativity, and makes the brain into an effective learning organism" (p. 26). "The sharing and collaboration capabilities and affordances of GSFE enable participants to transform their composing skills" (Brown & Hocutt, 2015, p.173).

In a recent study on game-based learning, Google Classroom was used as a platform for a game targeted at seventh and eighth grade students (Jenson & Hébert, 2017). The game was used to support physical geography topics and concepts (Jenson & Hébert, 2017). Jenson and Hebert, (2017) showed the focus had to be on the task rather than the usability of the technology. Students need to be involved in completing a task while engaging in the game, and students

should be supported by teachers who are engaged in their learning (Jenson & Hébert, 2017).

Keeler and Miller (2015) found several other benefits of using Google Classroom, and mentioned how Google Classroom ensures streamline counseling by posting an announcement. In this way, Google Classroom facilitates collaborative learning (Crawford, 2015). In the book *50 Things You Can Do with Google Classroom,* Keeler and Miller instructed teachers how to effectively implement digital tools in their classroom when they do not fully understand them themselves. The book includes a step-by-step overview of the Google Classroom App for teachers. The teacher can upload materials and can give feedback to students. Students can upload materials and make personal comments. Additionally, students can collaborate with each other by sharing their documents and assignments and thus produce their best work (Keeler & Miller, 2015).

In studying teacher integration and implementation of technology through Google Classrooms, a limited amount of information is available relating to the integration of Google Classroom into elementary schools. The studies conducted by Google were within higher education and secondary education settings (Google Inc, 2016d). The studies that focused on elementary education were focused on integrating the GSFE and Chromebooks (Google Inc., 2011; 2015b). Educational institutions have been rapidly transitioning to the GSFE.

Google Classroom in higher education. Higher education institutions utilize a variety of online management systems to teach and distribute information to students. Universities have taken part in testing Google Classroom to communicate with students, using it to create and disseminate announcements, collect assignments, and give valuable feedback (Guzman, Estira, Cabaluna, Nieva & Ventayen, 2017). By utilizing the GSFE, professors can incorporate a

variety of applications they are already using and allow students to use the non-traditional LMS to learn.

Guzman et al., (2017) conducted a study at Pangasinan State University to test out Google Classroom as an eLearning tool with the faculty of two classes. Faculty were taught to upload all instructional materials for the subject and conduct academic- and nonacademic-related activities. The usability was then evaluated based on student surveys. Guzman et al. found the academic activities were rated as useful and extremely useful. Additionally, the nonacademic activities such as announcements and grades were rated as extremely useful. The overall weighted mean of the application was 4.15 out of 5, with 0 being not useful and 5 being most useful (Guzman et al., 2017). The faculty also found the Google Classroom tool helpful and felt they would utilize it again.

To make the higher education setting more conducive to collaboration, North Carolina State University created a system in which staff and students felt their professional and academic needs were being met. Google highlighted this transition in one of their impact stories in Google for Education Online. First, NC State University transitioned over to the GSFE utilizing all the tools available (Google Inc., 2016d). Initially, they were using Legacy email systems, Cyrus IMAP, and GroupWise. These systems were not allowing administrators, staff, or students to work collaboratively utilizing online platforms, while the GSFE not only enabled collaboration, but also made it relatively easy. The cost effectiveness, storage space, software and hardware integration, and management were the main reasons for transitioning to GSFE (Google Inc., 2016d).

In focusing on usability at the university level, Bhat et al. (2018) identified the usability of Google Classroom as an online learning tool. Bhat et al., evaluated Google Classroom based

on feedback from the teachers and students who were surveyed on the usability and specific features of the tool. The results showed a 94.9% level of satisfaction when using Google Classroom, and 44.1% highly recommended Google Classroom, with a weighted mean of 4.15.

Blackmon (2017) conducted a study of graduate students' use of Google Classroom and offered insights into nontraditional LMS use and potential benefits and challenges. Educators have used these types of LMSs for professional development, to share course information, and to interact with classmates and professors. Several LMSs share many similarities with social media platforms. In Blackmon's study, the positive feedback from graduate students included being able to follow each other's assignments and learn from differing perspectives. The interaction with Google Docs allowed Google Classroom to be integrative. The graduate students were impressed they were able to comment on each other's assignments, comment to the professor, and receive professor feedback (Blackmon, 2017). The difficulty the graduate students faced was inexperience. Blackmon found half of the students had never used Google Classroom. The participants reported finding a variety of different experiences with student-to-student interactions within the non-traditional LMS. Some found the course stream a bit difficult due to the posting times. Others seemed to prefer Google Classroom over other LMS systems. Blackmon suggested tutorials be provided for new users, instructors utilize tags to group the content together, and instructors also emphasize opportunities for students to interact.

Google Classroom in secondary education. In secondary education, students are constantly changing classes and teachers must struggle to teach content and keep their students' attention. Research has shown secondary education educators found many benefits to utilizing Google Apps for Education, including the nontraditional LMS found within Google Classroom (Google Inc., 2015b, 2016b; Morquin, 2016).

Morquin (2016) examined six middle and high school teachers' perceptions regarding the use of Google Classroom and Google Docs and their impact on student engagement at the secondary level. The teachers explained that their students were engaged; Google Classroom allowed for classroom flexibility; teachers and students felt empowered; and the time efficiency allowed for facilitating teaching and assisted with organizational improvement. Teachers utilized the resources within Google Classroom to assist their students in collaboration.

Google Inc. (2016b) conducted a study on Jackson Preparatory School in Mississippi, a school for students Grades 6 through 12. The school administration worked to help teachers achieve better work-life balance with GSFE (Google Inc, 2016b). In 2011, the school introduced Google Apps for Education, now known as Google Suite. In 2014 the school introduced Google Classroom; through this initiative, 100% of the faculty received Google certification. Students were taught to work in groups and to give presentations, and parent communication also improved. The school regularly hosts faculty from neighboring districts to share how they are using Google Apps, Google Classroom, and Chromebooks to get the word out about their experiences. By utilizing the Google Suite, a work-life balance has been created and many other schools want to take part in gaining that stability.

In Florida, Lee County Schools distributed 18,000 Chromebooks to their middle school students. The Lee County Schools' initiative was implemented in order to stay up to date with technology, access digital textbooks, provide students an opportunity to complete their assignments digitally, and conduct online research on the program implementation. They also wanted to provide teachers with tools to use videos, interactive activities, and shared documents in their lesson plans. During the implementation of the Chromebook in the school district, Google Inc. (2015b) conducted a case study, which confirmed teaching and learning can be

customized, such as when "a history teacher uses Google Earth to take students on a virtual tour of buildings they're studying, catering to visual learners," and learning is customized (Google Inc., 2015b, p. 1). Additionally, students who need help with a specific activity can review the video lesson (Google Inc., 2015b). Lastly, the researchers found students can also collaborate in real time by having access to each other's assignments, which enables them to help each other learn new things and edit (Google Inc., 2015b). Overall, these opportunities for collaboration assisted students who were off-task and encouraged participation by allowing every child to share the responsibility in their group work.

The two-way feedback process has proved to be beneficial for administrators, educators, and students. When students have completed their assignments, they submit them to the teacher and the teacher can then comment and give a grade. After the students receive their grades, they can edit their assignments and make additional comments back to the instructor. The quick grading process allows "teachers to address areas of improvement as learning happens, and then they are able to more quickly help students improve their understanding of a concept or mastery of a skill" (Google Inc., 2015b, p. 2). To communicate quickly, assess students' understanding, and react to their results in a timely manner, Google Inc.'s (2015b) case study demonstrated that the Lee County school district has made gains in comparison to the technology it utilized before the GSFE, increasing from 2,000 to 18,000 Chromebooks (Google Inc., 2015b). Students communicated quickly by using real-time collaboration. Students' understanding increased because teachers were able to develop personalized lessons based on students' learning styles (Google Inc., 2015b). Lee County Schools' employees embraced student learning by providing quick accurate feedback and tailoring the instruction to meet the students' needs (Google Inc., 2015b).

In a case study set in Dublin, CA conducted by Google for Education (Google Inc., 2016a), IT issues were eliminated, and students and teachers were empowered through collaboration through Google Apps for Education and Google Classroom. Initially, IT issues created problems for the school district before implementing the GSFE. Many of the schools found that students lost work, teachers lost emails, and important documents were misplaced. The teachers in this environment were able to utilize blended learning to educate their students. Before adopting GSFE, Dublin Unified School District (DUSD) experienced difficulties with email outages. Teachers and administrators struggled to reconcile two email and calendar systems, which led to miscommunication, delayed responses, and missed meetings. Staff had no way to meet remotely, so some administrators would travel across the district to attend meetings (Google Inc., 2016a). The benefits of introducing 7,000 Chromebooks to the additional 3,000 already circulating through the district allowed for efficient communication, improved organization, encouraged collaboration, and easy administrative controls, along with increased security.

Technology Integrated Classrooms Using Google Classroom

Google Classroom is an integrated platform that can also be used with other Google tools to help educators provide instant feedback and track a student's progress to improve performance. Utilizing tools together with Google Classroom allows for multiple applications to be used in conjunction with the LMS. Not only can teachers manage student assignments, but they can also integrate other outside websites, apps, and programs. Students can access Google Classroom via a mobile application for easy access anytime and anywhere. Heggart and Yoo (2018) focused on getting the most from Google Classroom; students who had used Google Classroom saw the clear value of technology to promote collaboration and quality in their

learning experiences. Heggart and Yoo found institutions formulate their learning platforms based on the needs of their students and an important consideration is how teaching practices are changing in order to benefit students. Institutions making judgements based on the efficacy of a learning platform and how to use it best in the educational setting is valuable for students (Heggart & Yoo, 2018). Heggart and Yoo identified the following four concepts that influence the outcomes when implementing an LMS platform: "ease of access, collaboration, student voice/agency and pace" (p. 151). Equally important, institutions implementing a learning platform should consider the four concepts to develop meaningful learning activities for their students.

A teacher can create a Google Classroom for any subject, thus having multiple classrooms for different subjects. In addition to the students and teacher, the class may also include multiple educators of the same subject. Google Classrooms that include multiple teachers can present students the opportunity to gain a variety of diverse perspectives on the same topic (Bhat et al., 2018; Keeler & Miller, 2015). The topics to be covered and corresponding reference materials may be sent to students in advance. Whenever an activity is initiated in Google Classroom, students receive notifications. Activities such as a student asking a question, or a new discussion posted by the teacher generates notifications on student devices. By utilizing this type of technology in the classroom, students can stay up to date with their assignments by accessing the Google Classrooms in which they are enrolled.

School districts are rapidly moving towards utilizing blended learning in their classrooms. Blended learning is a mixture of face-to-face and online learning (Halverson et al., 2017; Halverson, Graham, Spring, & Drysdale, 2012). Blended learning focuses on the learner rather than on the teacher (Pierce, 2017). Elementary and secondary education teachers alike are

using the blended learning method to reach their students in a way that allows hands-on and inquiry-based learning. The learning occurs in multiple ways, including student-directed and teacher-guided, and even through collaborative group work. Many blended classrooms target small groups of students, integrate technology through interactive content, and facilitate multiple types of activities at the same time (Ullman, 2014). According to Ullman (2014), "Blended learning lets students be active learners and drive their instruction. Teachers can get students doing what they need and what makes the most sense" (para. 3). Lastly, blended learning allows thorough data-driven instruction so teachers can reflect upon what they need to continually encourage their students to progress (Ullman, 2014).

Recent meta-analyses have shown student performance has increased when using blended and online learning, when compared to face-to-face instruction (Bernard et al., 2009; Means, Toyama, Murphy, & Baki, 2013). In blended learning, a personalized learning path is created for each student in which teachers set goals for students based on their individual needs. Digital content supports blended learning by helping teachers provide prescriptive instruction to support skill gaps. For example, blended learning allows a teacher with 25 students at different reading and math levels to set targeted events and goals for each student (Ullman, 2017).

One type of blended learning, the flipped classroom, occurs when students receive the content at home and review it before they come to school. Google Classroom fits perfectly into the category of flipped classrooms, which are becoming increasingly popular (Bhat et al., 2018). The flipped classroom approach is a nontraditional way of teaching in which students engage in much of the content online and the activities that were once completed for homework now function as classwork activities (Brame, 2013). Students are first exposed to the content at home and then apply their knowledge in the classroom setting.

In many traditional classrooms, the lessons start with the teacher at the front of the room and students are actively listening throughout the classroom. In this type of teaching method, the teacher communicates the information to the masses. According to Kwan and Woo (2018), "This style of teaching is created more for a society of industry, rather than creating an environment where the learners can creatively engage in knowledge and socialization which is needed for a modern, technology-driven, society" (p. 3). This style of teaching depends on technology, and particularly LMSs.

Learning Management Systems (LMSs)

An LMS is the "great enabler" of many current and future education initiatives. An LMS like Google Classroom can enable personalized learning, learner-centered decision-making, staff productivity, and curriculum development in support of Common Core State Standards (Phillipo & Krongrad, 2012, p. 1). Educators need a web-enabled relational database that links curriculum, instructional resources, assessment strategies, student data, and staff proficiencies. A comparison of the features of several different LMSs would be helpful for schools and teachers to make better decisions about which LMS best suits their needs.

Traditional versus nontraditional LMSs. The traditional LMS was focused on course administration, classroom management, and learner enrollment (Phillipo & Krongard, 2012). Similar to a software application, the traditional LMS was focused on administration and described as cumbersome due to the navigation features. Users of the traditional LMS failed to complete many of the courses due to navigation complexities (Phillipo & Krongard, 2012). On the other hand, a modern or nontraditional LMS provides a simple and efficient learning environment, focusing on the efficient distribution of resources (Phillipo & Krongard, 2012). Students can now use nontraditional LMSs to develop professionally, share information, and

communicate with others. Learners can easily access the training resources on any device,

paving the way for a conducive, learner-friendly environment (Phillipo & Krongard, 2012). A

seamless LMS is easy to use and the design and structure are intuitive and standardized.

Google Classroom as an LMS. Google Classroom is considered a new type of LMS

used for blended learning. The LMS allows educators to digitally create and manage

assignments while providing digital feedback to students. Google Classroom was created for

teachers in 2014 to assist with time management, organization, communication, and student

productivity (Google, n.d.). Google Classroom is one of the top 50 LMS products (Finances

Online, 2018). By providing a paperless classroom the LMS gives access to Google products

such as Google Docs and Drive. Google Classroom has simple set-up time, saves money, and

allows for tracking student progress (Finances Online, 2018). The LMS allows for instant

collaboration between teachers, as well as students inside and outside the classroom.

Furthermore, the deployment is through the Cloud and allows for live updates (Finances Online,

2018).

According to Johns, Troncale, Trucks, Calhoun, and Alvidrez (2017), Google Classroom

makes connecting easy for learners and instructors, both inside and outside of schools. Through

the utilization of this technology, an online environment is provided where students are grouped

together and have interaction opportunities (Cummings, 2016). According to Brown and Hocutt

(2015), "Google Classroom functions as an interface connected with Google Apps for Education

(GAFE); the primary functionality and interaction for students is with GAFE itself" (p. 162).

Unfortunately, Google Classroom falls somewhat short for teachers taking on standards-

based or competency-based models. The LMS can be difficult to navigate for new users who

have not had experience with an LMS or with the GSFE. From the support aspect, Google

Classroom has its own how-to videos and help guides. The Google site guides teachers and

students through some of the features the first time; though if they are not observant, they will

overlook this feature. Due to the variety of third-party applications that have built-in integration,

finding support with some of the applications can be difficult (Langevin, 2018). Engagement

can be an issue if teachers do not take full advantage of the LMS by creating activities that will

spark the learners' interest (Langevin, 2018). Pedagogy can be seen as lacking because premade

lessons that are seamlessly integrated for understanding are not available (Langevin, 2018).

Other LMSs are used by a variety of educational institutions, including elementary schools,

secondary schools, and postsecondary education. In the following section, several LMSs will be

described and their features discussed with focus on the pros and cons.

Canvas as an LMS. Canvas is an LMS that incorporates multiple features. Canvas has

a "grading feature called Speed Grader that also allows for recording audio/video for grading

purposes" (Finances Online, 2018, para. 5). "Educators can go about their teaching in a different

way to reshape their teaching style by utilizing the website or app to make their teaching more

natural, flexible, and customizable" (Finances Online, 2018, para. 8). Teachers can create

courses, curriculum, and certification paths for their students.

The benefits of Canvas include having an "open source software that offers APIs,

security audits, and feature discussions" (Finances Online, 2018, para. 8). Application program

interfaces (APIs) are a set of guidelines and routines for developing software applications.

Educators can use the openness to allow third-party applications to connect and import and

export data (Finances Online, 2018, para. 8). The LMS offers pedagogical flexibility by using

the application center, which institutions and instructors can use to add new technologies to their

courses. In times of need, Canvas has in-house experts who offer prompt and reliable support to

ensure little downtime. Due to being hosted on the Amazon Web Services platform, Canvas is high-speed and offers assured security through the vendor. The vendor of Canvas conducts audits that ensure security for the LMS. The system assures 99.9% uptime to all customers, which allows for continuous work-flow (Finances Online, 2018, para. 14). The cloud-based system means minimal upgrades, downloads, or migrations, which minimize risks and downtime (Finances Online, 2018). When paying for Canvas, institutions are mainly paying for administrative control and access of the courses that are created within their institution, with support and training (Finances Online, 2018). Canvas support allows for phone calls and training (Finances Online, 2018).

Joaquin (2018) noted increased interactive and organization components when teachers utilized Canvas. Canvas provides a variety of experiences for designers, instructors, and learners (Joaquin, 2017). Teachers are able to link items from Google Drive, enabling them to create modules with organized content, support pieces, activities, and reflections grouped together in one place (Joaquin, 2017). Students also have access to the app, which allows for quick communication and a way for them to stay up to date on their assignments (Finances Online, 2018). "After hours discussions, conferences, collaborations, discussions, and chats are built-in, interactive components that assist with student feedback" (Joaquin, 2017, para. 5). In this particular LMS, courses can be exported, enabling reuse. "Canvas Commons, an area of global lessons, modules, courses, activities, and more, allows educators to easily add to their own courses, giving new teachers a leg up" (Joaquin, 2017, para. 6).

Several difficulties may arise from a student perspective and a teacher perspective when utilizing Canvas. The difficulties with Canvas for teachers include no simple way to add a basic assignment to the calendar and difficulties with navigation (Littlefield, 2018). The Canvas

platform can also cause problems when editing because the documents change back to older versions (Littlefield, 2018). The problem with reverting back leaves teachers feeling uneasy and worrying about the consistency of their work (Littlefield, 2018). Initially, students, on the other hand, have trouble with navigating in Canvas; the platform does not provide clear directions or guides on how to access assignments (Littlefield, 2018). The students who were unfamiliar with Canvas found it hard to submit assignments or review content until they become familiar with the platform. After the students adjust to using the program, the students are able to manage the content better (Littlefield, 2018).

Blackboard as an LMS. "Blackboard is an application that delivers businesses and educators the ability to reach and teach their employees or learners via a virtual environment" (Finances Online, 2018, para 2). This web-based software provides a course management system, customizable open architecture, and scalable design that empower users to combine the application with student information system and authentication processes (Finances Online, 2018). Through Blackboard, teachers can create online courses to initiate learning with few or no face-to-face meetings (Finances Online, 2018). Blackboard offers four specific modules to address four different target learner demographics: K-12, Higher Education, Government, and Business (Blackboard Inc., 2018). Blackboard has a flexible pricing system in which users are given packages that meet their needs and they only pay for the features they ordered. Customer support is available via several channels to ensure users have complete success while working with this system (Blackboard Inc., 2018).

Blackboard LMS offers a variety of distinct benefits for learners and students (Blackboard Inc., 2018). To start, users gain immediate and streamlined access to all features compatible with their devices (Blackboard Inc, 2018). "Blackboard can be used on all types of

smartphones and tablets" (Finances Online, 2018, para. 5). Additionally, Blackboard allows administrators to gain complete control on all learning activities taking place in the organization, as well as a collaboration suite to keep learners connected. Blackboard also ensures educators have a variety of methods to improve students' and learners' engagement, as well as motivate them to use their maximum potential (Finances Online, 2018). "Student previews, SafeAssign, Data Management, Collaborative Integrations, and Calendars are all features that can be used to assist with teaching and learning" (Finances Online, 2018, para. 6). The LMS offers a phone number, training, and an online ticket service for support (Blackboard Inc., 2018). In order to support learning in multiple environments, the LMS can be used on Android, web-based devices, and iPhones and iPads (Finances Online, 2018). Multiple institutions, including government, corporate, higher education, and K-12 use Blackboard (Blackboard Inc., 2018).

Consumers should be aware of several problems when planning to use web materials via Blackboard. Inadequate resources at the school end or student end is a major problem (Johnson, 2003). Instructors should know who is available to help when troubles arise. Instructors should also understand the amount of network traffic their systems can handle (Johnson, 2003). Educators need to be aware of how quickly data will be transferred, how stable the network or Internet connection is, and what programming will be required. Being aware of what software and hardware will be needed is also a major priority, along with an understanding of how often the materials need to be updated for student access and direction (Johnson, 2003).

Seesaw as an LMS. Seesaw, another LMS, is a digital portfolio for students, teachers, and parents. "Seesaw builds a comprehensive record of student learning" (Seesaw, 2019, para. 2). Seesaw works as more of a digital portfolio tool that combines student, teachers, and parent feedback (Moore, 2017). The digital portfolio syncs within the class and can follow students

throughout their entire academic careers (Seesaw, 2019). Seesaw has features for students to design and create work, but at this point, Seesaw is only used at the elementary and secondary levels, not in higher education (Major, 2018). The LMS is compatible with Androids, iOS, Kindle Fire, and Chrome, and is recommended for use in Grades K-12.

The student component of Seesaw allows students to document their individual work by using built-in tools. Teachers can send assignments to students, stay organized, communicate, and keep students safe. Parents can be involved by seeing what their students are producing and communicate with them daily, giving them feedback. Seesaw allows students to take ownership of their work and reflect on their progress.

Seesaw is user-friendly and allows for students to use the platform with ease. One of the components that allows for younger students to utilize Seesaw is the login process. Students can use a quick response (QR) code to log in directly to their teacher's class (Moore, 2017). The students do not have to type in usernames or passwords. The students select their icon based on the animal beside their name and quickly create or upload work. The students can choose from multiple options, including taking a photo, video, drawing, adding a file, creating a note, or uploading a link. Teachers can send students assignments the teacher created or selected from a limited online portal where lessons have been created for educators to use.

Voigtlander (2016) surveyed 300 teachers who had used Seesaw for 4 months. The students in the class added one post per student per month and were from public and private schools. The results showed "92% of students were more engaged in learning and took more ownership of their work and 86% of students put in more effort on their work while using Seesaw" (Voigtlander, 2016, p. 1). Of the 300 teachers surveyed, "93% stated that learning how to use technology appropriately and responsibly helped the students and responsibly and 95% of

them felt that Seesaw helped to teach 21st Century skills, like collaboration, problem solving, creative/ critical thinking and digital citizenship" (Voigtlander, 2016, p. 1). Teachers reported their thoughts on how Seesaw assesses students and how it helps the teachers use technology resources effectively; "91% reported that Seesaw helps assess, 94% reported that Seesaw made showing student learning and progress easier, and 98% reported that Seesaw helped them use technology resources effectively" (Voigtlander, 2016, p. 1). Of the 300 teachers involved in the study, "76% reported that Seesaw saves time and on average approximately three hours per week" (Voigtlander, 2016, para. 2). Furthermore, "92% of teachers have seen an increase in parent involvement and engagement since using Seesaw, building a strong home-school community program" (Voigtlander, 2016, p. 2).

Seesaw has a free or paid version. The Seesaw paid version is $120.00 per year–per teacher. In the paid version, Seesaw Plus allows instructors to schedule assignments in advance (Major, 2018; Moore, 2017). In the Seesaw Plus version, progress toward skills can also be tracked (Major, 2018). In the free Seesaw LMS, teachers can send out assignments with voice instructions and record private notes on student work (Major, 2018). "An example of the work can be created with the tools such as video, photo, drawing, or even text" (Major, 2018, para. 4). When completing their work, students have access to the same tools and can upload files from Google apps. The tools in Seesaw are easily accessible for younger students who are not familiar with uploading items they have created.

"Seesaw allows teachers to assign differentiated activities to individual students, and teachers have the option to view whole-class or individual student work feeds" (Major, 2018, para. 5). The differentiation method allows teachers to accommodate students' individualized education program (IEP) goals and formulate groups for different assignments. Students'

assignments can be graded based on the collaborative groups they are in or based on their individual assignments. Many English language learners come into the classroom having no experience with the English language, so another helpful feature used for differentiation is the built-in translation tool in Seesaw, which assists with language issues.

Additionally, Seesaw has the capability to allow parents to receive announcements and individual messages (Major, 2018). Parents can view their students' work and comment on what they see. Encouraging students with feedback from their parents is a major benefit of using Seesaw. Parents, teachers, and students can leave feedback if the option is enabled in Seesaw. Each comment is approved by the educator who oversees the class. In relation to grading, Seesaw does not have a feature to give students grades on their work.

Seesaw does have some difficulties that cause some setbacks with using the LMS. In the paid feature, the skills and standards have to be manually entered to be tracked, which is very time consuming for educators (Rogowski, 2018). The quick log-in system limits users from logging in separately and causes the users to not post their own likes and comments to posts (Bambury, 2015). When implementation first occurs, younger users have to be trained on how to use the LMS because they are not familiar with exactly how the LMS functions.

Chromebooks

The LMSs are the software needed for technology integration; yet hardware, like Chromebooks, must also be considered. Chromebooks are becoming more common in the classroom. Many school districts have quickly transitioned to the usage of Chromebooks. For example, teachers in Charlotte-Mecklenburg Schools (CMS) in North Carolina started the transition in 2012 with only 100 Chromebooks in circulation, and today over 27,000 Chromebooks have been issued to students in their schools (Ullman, 2017). "U.S. schools buy

more Chromebooks than all other devices combined" (Pierce, 2017, para. 3).

Chromebooks were the device of choice for the CMS system because their textbooks had not been updated, and students having up-to-date information on a device that was not outrageously priced, was vital. "Pricing was critical, but Charlotte Mecklenburg school system also asked vendors what they could bring to the table to help make the digital learning conversion successful" (Ullman, 2017, para. 6). The Chromebook makes sense in classrooms because it can boot up in 10 seconds or less. The devices have long battery life, built-in virus protection, a touch screen feature, and can be transformed into a tablet (Google, 2018b).

Other features of the Chromebook include its light weight, automatic updates, file sharing, and the ability to work both online and offline with multiple apps (Google, 2018b). When school districts go one-to-one (1:1) with Chromebooks, meaning all students have their own Chromebook, educators can integrate curriculum through technology and students can contribute by using their Chromebook. The Chromebooks ship with standard applications for students to use from the startup, such as Drive, Docs, Sheets, Docs Offline, Forms, Drawings, Slides, Keep, Google Play, Hangouts, Gmail, Calendar, Play Books, Maps, and more (Google, 2018b). By integrating Chromebooks and using the GSFE, teachers can manage students' work, go paperless, and even offer feedback instantly once the students have submitted their assignments, or even while they are working. As a part of the Chromebook, educators utilize Google Classroom to send out information to their students, formulate a collaborative work environment, and grade students' work online.

Chromebook integration. Chromebooks in the classroom have helped many school districts reach their goals of cutting costs, having more efficient testing, and providing differentiated student instruction and more versatile instruction delivery methods (Ullman,

2015). In Gaithersburg, MD, the chief technology officer of Montgomery County Schools

wanted to focus on what the school system valued: "community, collaboration, and partnership

in the school system" (Herold, 2014, para. 17). The digital platform of Google's apps for

education allowed for word-processing, spreadsheets, email storage, and other web-based

applications. The GSFE was available for free and allowed teachers, students, and staff to work

together easily (Herold, 2014).

Another impact Chromebooks had on Montgomery County Schools was increased

student collaboration and feedback among students. Students can work together and edit each

other's work as they go. Students have access to multiple types of information along with

others' ideas and can reference all material with ease. The impact of the Chromebook

integration has allowed one teacher's classroom to become "more efficient, offering more time to

get students working together and providing tools that allow her to give more timely and detailed

attention to her students' work" (Herold, 2014, para. 29).

In the first future-focused high-rise school in New South Wales (NSW), Australia, Arthur

Phillip High in Parramatta integrated both Chromebooks and Google Apps for Education.

Arthur Phillip High experienced a decline in the number of suspensions, and an increase in

student attendance and student engagement, all of which of the school credits to the

implementation of Chromebooks (Google Inc, 2014). In 2013, Arthur Phillip High cut their

Digital Education Revolution (DER) laptop program due to lack of funding. The school to had

to find "a manageable and affordable solution that would let students continue to access the

online curriculum and enable teachers to innovate and further explore the potential of digital

tools for learning" (Google Inc, 2014, para. 2). By introducing Google Apps for Education and

Chromebooks, teachers have relocated existing digital topics to the schools' Google Domain and

created new units of work in the domain (Google Inc, 2014).

Chromebooks with Google Suite. Integrating Chromebooks and the use of Google Apps and Sites has encouraged teachers to design the most imaginative, innovative, and richly resourced digital tasks (Goodwin et al., 2015). Some examples include online crime scene investigation of a body found in prehistoric Denmark, digestion animations and interactives, students using their knowledge of natural hazards to manage simulated earthquakes, floods, and bush fires, and analyzing film clips (Goodwin et al., 2015). Educators create these materials and send the files out to students to utilize in their learning. To prepare for the real world, students are taught keyboarding skills, Google Applications, and research via blended learning opportunities (Fink, 2015).

Students have additional and expanded learning opportunities due to the integration of Chromebooks and the GSFE, including Google Classroom. Examples of curriculum integration activities include taking collaborative notes on the book *Maniac Magee* and Jerry Spinelli's use of metaphors, personification, characterization, and other literary devices (Herold, 2014). Students also worked in groups to edit presentations in Google Slides and were responsible for their page of documentation (Herold, 2014).

According to Fink (2015), seventh-grade social studies class at Summit Lakes Middle School in Lee's Summit, Missouri, investigated the history of ancient civilization using Time Maps, a Google Chrome App. The students click through the map to focus on the changes in the region. Students made connections of the rapidly growing Mesopotamia region, which had few changes initially and then during a certain period, rapid change. The students had in-depth discussions and focused on how some civilizations became nonexistent over time (Fink, 2015).

A science teacher at Caruso Middle School in Deerfield, Illinois, incorporated virtual

simulations to build students' skills and confidence before transitioning to labs in the classroom (Fink, 2015). Students use Brian Pop's Virtual Microscope Lab to practice using a microscope before they use a real one in their lab activities (Fink, 2015). The students can engage in hands-on activity without the risk of breaking equipment. Students then transition to the real microscope and feel confident when using it.

Some teachers, such as Rebecca Grgurina, a sixth-grade science teacher and STEM coordinator at Kennedy Middle School in Charlotte, North Carolina, use the applications available on Chromebooks to assess students' knowledge and understanding of content (Fink, 2015). Chrome apps, such as Google Forms, Flubaroo, and Exit Tickets, are used in the classroom for assessments (Fink, 2015). These applications are necessary for teachers because they help with time management, and data collection, which makes assessing student growth an effortless task. When students have mastered the basic objectives, they can move on to more challenging content while others receive supportive instruction (Fink, 2015). As teachers focus on the students' varied levels of proficiency students are able to take part in various learning activities and for instruction to be differentiated.

Fink (2015) related that for a fifth-grade teacher at Mayville-Middle School in Wisconsin, "the ability to collaborate electronically has fed her students' creativity" (para. 7). These students use Google Docs and Slides to collaborate at school or home. Students were given an open-ended social studies assignment where they had to research and present a Midwestern historical topic. Students made movies, wrote scripts, built props, acted out, and created a movie all while using their Chromebooks (Fink, 2015).

In the lower elementary grades, Chromebooks are gradually being introduced, and the students in kindergarten and first grades can learn keyboarding and basic computer skills. A

computer buddy system has been created at New Roads Elementary School in Santa Monica, California. Fifth grade students have opportunities for learning and leadership by being involved in lower grade classrooms. "The students come into the lower grade classrooms and showcase their projects with graphic organizers and interactive multimedia" (Fink, 2015, para. 14). The older students can show the younger students how to use their Chromebooks and model the activities while they are presenting.

Transitioning to Chromebooks. Schools are transitioning from iPads to Chromebooks at a rapid rate (Ahlfeld, 2017). The Chromebook has an operating system that is more capable, shareable, less expensive, and easily maintained (Ahlfeld, 2017). Many school districts are still using tablets because fine motor skills have not been developed in younger students (Fink, 2015). When the students have practiced on their devices, they can use the Chromebook with ease and produce high-quality work. Many districts are skeptical, but once they complete the transition process, workflow is much easier for students and staff (McLeod et al., 2015). Bloomington Public Schools (BPS) incorporated Google Apps and Chromebooks to prepare all learners for a rapidly changing world (Google Inc., 2014b). BPS realized after implementing a MacBook pilot program that the program would be extremely expensive to sustain. They switched to Chromebooks and began to distribute the computers to the students, starting with high school and moving down to first and second grades, issuing one Chromebook for every three students. "The hands-on, flexible approach enabled by Google Apps and Chromebooks has helped teachers empower their students to engage with the material" (Google Inc., 2014b, para. 8). The school district stated the transition has led to flipped classrooms, full mastery-based processes, co-working, collaboration, and students working together more actively (Google Inc., 2014b).

Cost of Chromebooks compared to iPads. School systems consider multiple aspects when purchasing a device for their district. With constant budget cuts and cutbacks in technology, finding the right device can be difficult. Ahlfeld (2017) showed people were shocked that a $149 Chromebook was outselling a $1,499 MacBook. "Educators cite Chromebooks' convenience, ease of use, and relatively low cost (about $200, compared to about $500 for an iPad or $380 for an iPad mini)" (Fink, 2015, para. 2). The cost is instrumental when schools are deciding what technology devices they want to use. Due to lower funding in many areas, getting the best device for the price is a great factor in the purchasing decision. Evaluating the prices and different functionality components of each device is a process, which educational systems complete to determine costs. The evaluation process assists with the decision-making process related to cost. iPads require a lot of maintenance and a program that many schools have to install on them to manage the devices to send out apps and updates. iPads can be very time consuming for tech departments and educators due to the amount of upkeep (Foster, 2015). When classroom teachers try to utilize iPads in the classroom, they experience complications, because iPads are designed to be an individual device that can be personalized by the user's specific settings and by installing specific apps based on preference (Foster, 2015). Chromebooks can be set up with ease and the administrator can manage the students' applications for them (Herold, 2014; Sahin et al., 2016).

Summary

This literature review included the discovery learning theory as it relates to teachers discovering how to effectively integrate technology into their classrooms. The related literature reviewed included studies about teacher integration of technology, comparisons of types of technology in learning management systems, and related hardware. Technology usage and

integration in the classroom have become more prevalent as research topics. Scholars have

recently conducted studies involving technology integration in educational settings (Ahlfeld,

2017; Barger, Hofer, & Johnson, 2017; Bebell & O'Dwyer, 2010). However, technology

integration studies have not been focused on elementary schools as much as they have focused

on higher education and post-secondary schools. Even fewer studies related to technology

integration that focus on Google Applications such as Google Classroom at the elementary level

(Frazel, 2007). In this study, I addressed this gap in the literature by investigating the lived

experiences of educators and how they have utilized technology to integrate Google classrooms.

Chapter Three will include details of the study design and methodology used in this study.

CHAPTER THREE: METHODS

Overview

The purpose of this transcendental phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. This chapter includes an explanation of the research design, a restatement of the research questions, a description of the setting, and an introduction to the participants. In addition, Chapter Three includes the procedures, data collection, and data analysis for the study. This chapter concludes with a delineation of the steps taken to achieve trustworthiness, discussion of relevant ethical considerations, and a concise summary of the chapter.

Design

A transcendental phenomenological approach was used in this qualitative study to provide educators a voice to express their thoughts and opinions of their lived experiences with the phenomenon of technology integration using Google Classroom. According to Merriam (2009), "Qualitative researchers are interested in understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world" (p. 13). Qualitative research was an appropriate research method for this study because it is "a situated activity that locates the observer in the world. Qualitative research consists of a set of interpretive, material practices that makes the world visible" (Denzin & Lincoln, 2005, p. 3). A transcendental phenomenological design was used for presenting the study in a manner that facilitates a clear understanding of the essence. The essence describes the phenomenon which is the integration of Google Classroom (Creswell & Poth, 2018).

Phenomenology is used in an attempt to eliminate everything that represents a prejudgment or presupposition. Phenomenology requires viewing things openly, undisturbed by

the habits of the natural world. The challenge of transcendental phenomenological research is to describe things as they are and to understand meanings and essences in the light of intuition and self-reflection (Creswell & Poth, 2018). Meaning is created when the object that appears in our consciousness mingles with the object in nature: "What appears in consciousness is an absolute reality while what appears to the world is a product of learning" (Moustakas, 1994, p. 27).

The transcendental phenomenological design is focused on individual experiences that connect directly with the purpose of the present study, which was to allow participants to describe their experiences with Google Classroom. Furthermore, a transcendental phenomenological approach was used to separate the participants' experiences from my own as the researcher.

In this transcendental phenomenological study, I analyzed all lived experiences that the participants have in common as they engaged with the phenomenon of integrating technology in their classrooms through the use of Google Classroom. I collected data from teachers who have experienced the phenomenon of Google Classroom technology integration, and a composite description of the essence of the experience for all the individuals—what they experienced and how they experienced it—was created (Moustakas, 1994).

Research Questions

This study of the lived experiences of North Carolina elementary school teachers who have integrated technology using Google Classroom was guided by one central research question and three research sub-questions.

Central Research Question

What are North Carolina elementary teachers' perceptions of the ways in which Google Classroom technology integration impacts classroom instruction?

Research Subquestions

SQ1: What are North Carolina elementary teachers' perceptions of the ways Google Classroom technology integration impacts student understanding of content?

SQ2: What are North Carolina elementary teachers' perceptions of the effectiveness of professional development (PD) provided to support their ongoing use of Google Classroom?

SQ3: What are North Carolina elementary teachers' perceptions of the ways their attitudes impact technology integration using Google Classroom?

Setting

The setting for this study was the Piedmont Triad Region of North Carolina. The population of the Piedmont Triad Region of North Carolina is approximately 1,667,072. The Piedmont Triad Region of North Carolina includes 11 counties. The median age for the Piedmont Triad Region of North Carolina is 41.9 (World Population Review, 2018). Of the people who live in the Piedmont Triad Region of North Carolina, 39.6% have some high school education, while 23.8% have some college education (World Population Review, 2018). The average yearly income for the Piedmont Triad Region of North Carolina is approximately $56,423 (World Population Review, 2018).

The study was conducted at four Google Schools in the Piedmont Triad Region of North Carolina. A Google school is defined as a school utilizing the GSFE. The specific school sites were selected for the study because the teachers in the Piedmont Triad Region of North Carolina are involved with the utilization of Google Classroom and provided valid information relating to the study. Purposeful selection of participants was used, including criterion and snowball sampling, to select the teachers at the schools in the Piedmont Triad Region of North Carolina who have used Google Classroom for 2 years or more.

Many schools in North Carolina have not adopted the GSFE and teachers might not be familiar with the applications or process, including distribution, training on applications, and usage of the GSFE to create curriculum resources. The pseudonyms used for the four schools were: Brook View Elementary, Caroline Elementary, Duncan Elementary, and Edgewood Elementary. The pseudonym used for the district was: Zinnia County School District. The district leadership includes a superintendent, assistant superintendent, curriculum director, special education director, and human resource director. Each one of the elementary schools in the study employs three teachers per grade level, except Edgewood, which only employs two teachers per grade level.

All of the North Carolina elementary schools in the present study have a school report card based on student end-of-grade test score proficiency (Chong, 2017). The school report card ratings are based on the proficiency of the end-of-grade testing for the third through fifth grade students. The scores are public knowledge so all community stakeholders have access to the proficiency level of the schools. The schools report card grades are a valuable asset because schools get funding and grants based on these scores. The larger the budget, the more technology the schools will be able to integrate in each classroom, thus supporting the GSFE.

Participants

I used purposeful and criterion sampling to select participants for the study. In addition, I used snowball sampling as needed to obtain additional participants for the study. I reached out to participant acquaintances who potentially had similar experiences. The North Carolina teachers in the study have a teaching license from a university and have taught for 2 or more years. All participants were directly involved with students in elementary classroom settings on a daily basis. The targeted participants were selected for this study because they utilize Google

Classroom daily in their classrooms. Teachers use Google Classroom for distributing

assignments and directions for students, directing students to websites, collecting work, and

giving feedback to students. The participating teachers possess extensive content knowledge and

first-hand classroom experience, which made them valuable participants for the study.

 Each study participant was a third through fifth grade teacher and employed at a Google

school that has utilized Google Classroom for 2 or more years. In addition, the teachers

represented a variety of ages and years of experiences. (see Table 1). The desired sample size

for this transcendental phenomenological study was 12–15 teachers, as recommended by

Creswell and Poth (2018). The participant selection screening for the study was conducted by

using a researcher-created screening instrument (see Appendix A).

Table 1

Demographics

Participant	Years teaching	Age	Gender	Race
Carrie	8	30	Female	White
Cindy	5	27	Female	White
Don	18	60	Male	White
Elizabeth	13	35	Female	White
Ella	5	30	Female	White
Kalie	9	45	Female	White
Katie	6	28	Female	White
Lanie	12	33	Female	White
Lonna	2	25	Female	Latino
Mary	5	46	Female	White

Penny	3	26	Female	White
Sue	13	34	Female	White

Procedures

Following a successful proposal defense, I applied for approval to conduct the study from the Liberty University Institutional Review Board (IRB). When I received approval from the IRB (see Appendix B), I began recruiting participants. To begin the recruitment and communication process, I contacted the superintendent of the school district involved to gain permission to conduct the study. After the superintendent granted approval, I contacted the principals at the elementary sites to communicate about the study and to request additional permission to discuss the research study with the teachers.

Following the meeting with the principals, I selected the teachers through purposeful selection and by using a researcher-created screening instrument to determine potential participants' usage of Google Classroom (see Appendix A). The screening instrument had four questions presented in a Google Form, and the participants answered the questions by using a drop-down menu online. After administering the participant screening questionnaire, I selected participants based on their years of experience with using Google Classroom as an LMS for teaching curriculum in their classrooms. The screening instrument included four criteria: a teacher in third through fifth grade; employed at a Google school; teaching in North Carolina; must have utilized Google Classroom for two or more years (see Appendix A).

I contacted participants by phone and through email to inform them of their selection as a participant for the study (see Appendices C & D). Those who agreed to participate completed consent forms (see Appendix E). The participants received frequent periodic reminders for the

interview schedule and Google Slides narrative completion through the duration of the study.

After participants were selected through the screening process, I interviewed each participant individually, recording the interviews using an iPhone and iPad for back-up purposes. The individual interviews were approximately 45 minutes long each, including my use of a list of open-ended questions (see Appendix F) and time for participants' answers. I hired a professional to transcribe interview recordings.

Furthermore, I conducted a group interview using Google Hangouts with at least half of the total number of participants to generate participant perceptions, opinions, beliefs, and attitudes about their Google Classroom experience. The focus group was approximately one hour, including questioning and participant answers. The Google Hangout focus group interview allowed for deeper discussion of issues, ideas, and the topic of digital learning through Google Classroom (Schwandt, 2015).

Google Hangout is a video chat with audio. The participants joined the chat through audio only or through both audio and video. I used specific questions to guide the participants in discussion (see Appendix G). At a specified time, the Hangout began. Participants joined the Hangout by logging in with their Google mail accounts. I used Screencastify, which is a screencast program, to record the Google Hangout focus group session. I used the recording for the transcription of the audio collected during the Hangout session. I hired a professional transcriptionist to transcribe the focus group session. The screencast recording was saved in Google Drive and only accessed by the researcher and the transcriptionist for transcribing.

I gathered more information about the participants' experiences with Google Classroom from photo narratives using Google Slides. The participants took pictures of different Google Classroom activities, their classroom setup, and any other digital learning activities that the

students take part in related to the Google Classroom experience. The Google Slides narrative

documentation took approximately 45 minutes to complete, including describing experiences and

uploading photos. I sent participants a set of slides with the titles created for each slide (see

Appendix H). The directions for each picture and description were included on each slide. The

participants had 2 weeks to create the Google Slides narrative. I asked the participants to write a

narrative to describe their experiences and the pictures they created using Google Slides. After

the participants completed their slideshow, they shared their document with the researcher by

email.

The individual interviews, focus group interview, and photo narratives were the three

data collection methods utilized in the study. Following data collection, a transcriptionist

transcribed the interview recordings to aid in data analysis for identifying themes.

Trustworthiness was validated through member checking of transcripts, bracketing, and use of

rich, thick descriptions.

The Researcher's Role

At the time of the study, I was an ITF for a rural school district in North Carolina. The

research sites were in the district of my employment. I did not hold any supervisory role over

the employment status of the participants. My role as the ITF served to open the door to conduct

this study and create a trusting, open relationship. By providing effective leadership and support

for educators throughout several schools, I instruct educators on how to use their digital tools and

advance their skills. I serve as a leader in planning, implementing, and deploying digital age

technology. In my role, I also provide PD and education on appropriate digital resources. As an

ITF, I demonstrate fluency with a wide range of digital tools, which support inquiry and student-

centered learning, best professional practice, and acquisition of digital teaching and learning

skills. I collaborate with faculty and staff members to create digital learning opportunities for students and to assist in the teachers' classrooms.

The ITF position is a grant-funded position from a $2,000,000 grant from the Danville Regional Foundation, designed to integrate technology into the school system. At the time of the study, I was involved in teaching PD to K–8 teachers in the district where I work. The PD workshops cover a variety of topics, ranging from Chromebook security software called Go Guardian, to Classroom Reading Applications, and the organization of Google Drive. My professional and personal background in the elementary education classroom and the new technology initiative within my own district has inspired me to focus on technology integration in the classroom. Due to my ITF job involving training teachers to use Google Classroom, I controlled my personal biases by using bracketing. The process of bracketing helped me describe personal experiences to view all data from a new and fresh perspective. This step was consistent with Creswell (2013), who stated, "In some forms of phenomenology the researcher brackets him or herself out of the study by discussing personal experiences with the phenomenon" (p. 78). To bracket my own experiences and biases, I used the process of reflexive journaling. I journaled before, during, and after the data collection process. Journaling during these times allowed for recording thoughts before the collection of data and reflecting after the data is collected. Ahern (1999) recommended beginning the journaling process prior to data collection, especially to "recognize feelings that could indicate a lack of neutrality" (p. 407). Being conscious of "bias, values, and experiences" (Creswell, 2013, p. 216) increased the intellectual rigor and enhanced credibility (Patton, 2015). Patton (2015) described reflexivity as "turning qualitative analysis on yourself" (p. 700).

To maintain a strict, unbiased relationship with the participants, I focused solely on

interviewing the participants and collecting data for the study. To gain a better understanding of the teachers' experiences I remained objective throughout the research process. I utilized member checking to verify what was transcribed accurately portrayed the participants' perspectives (Creswell & Poth, 2018).

Data Collection

The data collection methods used for this study included individual interviews, a Google Hangout focus group interview, and Google Slide narrative documentation. Given (2008) cautioned, to achieve data saturation, the researcher must look at each datum individually to ensure no gaps or unexplained phenomena remain. I utilized two electronic recorders to record all of the interviews and the focus group. I hired a professional to transcribe interview recordings. I stored all data on a password-protected computer and backup files were created frequently.

Individual Interviews

Face-to-face interviews in this transcendental phenomenological study incorporated interactive questions and followed a process to focus on semistructured, open-ended comments and questions (Moustakas, 1994). I orally administered a list of predetermined questions. During each interview, the participants had a chance to share their experiences with the phenomenon (Creswell & Poth, 2018; Moustakas, 1994). The interviews began with informal conversation to create a relaxed and trusting atmosphere. I then transitioned the focus of the interviews to the individual's experience with, and awareness of, Google Classroom, as well as its impacts on the individual and any other details the individual wanted to share to describe the experience more fully (Moustakas,1994). I used the individual interviews to understand the participants' shared experiences of the phenomenon. By my listening slowly, thoughtfully, and carefully, the "interviews were a way to get the participants to share their experiences as lived, in the natural attitude" (Vagle,

2014, p. 80).

The interviews were the first part of the data collection process. The interviews were recorded in two ways. I first used the Voice Memo app on an iPhone. Next, for backup in case the other recording did not work properly, I used an iPad. Creswell and Poth (2018) suggested interviews be conducted through question and answer in an area where the participant is comfortable. I interviewed the participants in the classroom in which they work, allowing them to respond in an open-ended fashion to my interview questions. A professional transcriptionist transcribed the recordings and returned the transcriptions to me for analysis. During the analysis of the transcription, I used bracketing to set aside personal opinions and knowledge of previous research findings about the topic (Fischer, 2009). The following questions were used for the individual interviews.

The Standardized Open-Ended Interview Questions and how they related to the research questions are as follows (see Appendix F)

1. Please introduce yourself.

2. Describe your teaching background.

3. What is your teaching philosophy?

4. How do you believe today's schools are impacted by technology? (CRQ)

5. What is your experience with digital learning in the classroom? (SQ1)

6. How did your school district go about introducing the G Suite or Google Apps for Education at the elementary level? (SQ1)

7. Describe the ways you use Google Classroom and your interactions with Google Classroom. (CRQ)

8. How do you use Google Classroom to teach the curriculum in different content areas? (SQ1)

9. Describe a lesson where you used Google Classroom to differentiate instruction or target the needs of a student. (SQ1)

10. What types of support did you receive before and during the implementation of Google Classroom? (SQ2)

11. What other types of support do you think would be beneficial for educators who are going through the integration process? (SQ2)

12. Describe your attitudes relating to your experiences with Google Classroom. (SQ3)

13. How do you see yourself using Google Classroom in the future? (CRQ)

14. What else would you like to share about Google Classroom or digital learning that we have not discussed? (CRQ)

Questions 1 through 3 were knowledge questions for me to get to know the participants and their educational background. Brinkmann and Kvale (2015) described the qualitative research interview as comprising "attempts to understand the world from the subject's point of view, to unfold the meaning of their experiences, to uncover their lived world" (p. 3). Knowing a participant's philosophy and background assists in understanding his or her thought processes.

With questions 4 and 5 I concentrated on getting to know the teachers' positions regarding technology integration, digital learning, and the rationale behind using technology in their classrooms. Through these questions, a central theme could be identified based on the experience of the individual. Developing an understanding of exactly what the interviewee says is important (Kvale, 1996). These two questions allowed participants to describe their values and express what they were feeling (Valenzuela & Shrivastava, 2002).

Through question 6 I invited the participant to discuss how his or her school introduced Google Classroom and encouraged ongoing use of the application. The question focused on one

of the research sub-questions to allow the participants to share their knowledge and discuss the

process of integrating the LMS (Valenzuela & Shrivastava, 2002). In Questions 7 through 9 I

focused on the usage of Google Classroom and how the participants used the application to teach

the curriculum and differentiate assignments, as well as their experiences with the application.

With these questions I also focused on the implementation of the application. I addressed the

phenomenon of the entire study through these three questions.

With Question 10 I asked the participants about the support they were given prior to and

while using Google Classroom. Determining the importance of the type of support that was

given during the transition may identify why the participant continues to take part in the process.

The question identified what the participant values or thinks about the topic (Valenzuela &

Shrivastava, 2002).

In Question 11 I turned the focus to assisting future teachers who could have similar

experiences with using Google Classroom and used to gathered suggestions from the participants

about the support that may be necessary for other educators attempting this integration. Bruner's

(1961) discovery learning theory allows teachers to share what they have discovered and learned

from their own experiences within the digital learning environment. Educators can share their

experiences and others can learn from these educators' experiences with this phenomenon.

With Question 12 I asked about the participants' attitudes related to their experiences

with Google Classroom. The question was designed to help me gain a better understanding of

the participants' perspectives related to the usage of Google Classroom. Valenzuela and

Shrivastava (2002) emphasized how the participants' feelings provides information that may

assist in future implementation in Google Classroom, which connects with the next question.

I utilized Question 13 to ask about the participants' thoughts regarding the future

implementation of Google Classroom. The question assisted with getting the participants to think about how they have utilized Google Classroom and how they plan to use it in the future. With this question I elicited information for other educators and districts who plan to go through the implementation process.

Focus Group Interview

The second data collection method was conducted through Google Hangout focus groups. The Google Hangout is a virtual video and audio messaging system. Through the Google Hangout focus group, the participants were able to share their in-depth experiences and contribute further insights into the information the participants shared during the individual interviews (Villard, 2003). Teachers from each school participated in the Google Hangout focus group. Exploring complex, multilayered concepts from the perspectives of the participants was important. With the focus group interview served to examine different perceptions of technology integration and points of view, and was used to gather information for discovery, benchmarking, evaluating, and verifying perceptions, feelings, opinions, and thoughts (Patton, 1990; Villard, 2003). The Google Hangout focus group was useful and with the resulting data, I was able to generate a rich understanding of participants' experiences and beliefs (Morgan & Krueger, 1998). The focus group allowed for discussion of issues, ideas, and the topic of technology integration (Schwandt, 2015). As the focus group moderator, I stimulated the discussion with various questions and comments relevant to the lived experiences of the participants. General guiding questions were used to initiate discussion and spark ideas in participants. The goal was for focus group members to stimulate each other's awareness by responding to ideas about Google Classroom integration they might otherwise not have considered. The following is a list of the focus group interview questions.

Focus Group Interview Questions for Google Hangout Focus Group Interview (see

Appendix G)

1. What is one thing you enjoy about using Google Classrooms?

2. What suggestions do you have for schools integrating Google Classroom?

3. How do you believe Google Classroom changed your teaching style in relation to collaboration?

4. What do you believe are the pros and cons of using Google Classroom?

5. What specific type of support do you believe would motivate teachers to use Google Classroom in their own classrooms?

6. What are some factors you believe impact educators' attitudes toward digital learning?

7. What other comments do you have about Google Classroom or digital learning?

I selected these questions because the generated responses revealed deeper insight into the participants' experiences integrating technology using Google Classroom. The first three questions functioned as engagement questions, designed to encourage participants to discuss how they use, implement, and collaborate using Google Classroom. Questions 4 through 6 functioned as exploration questions, regarding the use of Google Classroom, including the pros and cons, support needed, and factors that affect educators' attitudes regarding the LMS. Question 7 functioned as an exit question, which concluded the focus group by asking for additional comments and thoughts on the LMS. The focus group responses further illuminated the emerging themes.

Google Slides Narrative Documentation

For the final approach to data collection I utilized Google Slides narrative documentation. For the slides, the teachers took images of how they have utilized Google Classroom, images of their digital learning environment, and imagines of completed assignments. I provided each participant

with a list of potential photo narrative suggestions. Participants chose what they wanted to

include in their Google Classroom slide show. Participants documented their experiences

through photos and provided a narrative description to accompany each photo (Banks, 2018).

"Visual arts draw on and develop abilities to observe, envision, and explore beyond usual

conceptions and capacities and reflect on that process" (Vagle, 2014, p. 92). The Google Slides

narrative documentation included both images and descriptions for the participants to display their

digital learning connections to Google Classroom. I used the photo narrative to cross-analyze

recurring themes in the encountered experiences.

The following list of photo narrative suggestions is also provided in Appendix H with

additional information:

1. Classroom layout photo

2. Google Classroom activities based on different subject areas

3. Posts to students through Google Classroom

4. Student work samples

5. Project-based rubric

6. Support/professional development opportunities—materials from sessions

Data Analysis

I analyzed the data for this transcendental phenomenological study using bracketing

(epoché) and Moustakas's (1994) modified Stevick-Colaizzi-Keen method, as simplified by

Creswell & Poth (2018). The transcendental phenomenological method was chosen because it

facilitated a full description of the experience and assisted in identifying themes that are relevant

to the participants' experiences with Google Classroom integration. I documented all relevant

statements using horizontalization, and I formulated a list to identify each non-repetitive, non-

overlapping statement. I further reduced the data by eliminating statements that could not be

labeled or did not contribute to the understanding of the experience of Google Classroom integration. The significant statements were grouped into smaller codes and then into larger units or themes (Moustakas, 1994). I repeated the analysis procedures using the data collected from the focus group transcripts and Google Slides narrative documentation.

Before analyzing the data from the participants, I provided a description of my own experiences with technology integration as an ITF. According to Patton (2015), the interviewer and interviewee impact one another. The interviewees had the potential to stir within me a personal response to their stories. To ensure that I entered each interview free of suppositions, I practiced reflexive journaling. This process began before the literature review was written and continued throughout the data collection process. Furthermore, to limit and acknowledge the impact of my personal ideas, thoughts and preconceived notions on the study, I used bracketing. Bracketing is the process of eliminating pre-judgements, presumptions, and reaching a transcendental state (Moustakas, 1994). The transcendental state allows "a fresh openness, a readiness to see in an undeterred way, not threatened by customs, beliefs and prejudices of normal science, by habits of the natural world or by knowledge based on unelected everyday experience" (Moustakas, 1994, p .41).

Reflection on my own textural description was conducted through imaginative variation, which constructed a textural description of the meanings and essences of the experience of Google Classroom integration. From the individual descriptions, I created a composite textural-structural description to represent the group. Moustakas (1994) defined a textural-structural description as a combined description of the textural constituents and themes of each research participant. Finally, I synthesized the textural-structural description to describe the "essence" of Google Classroom integration as a lived experience (Creswell, 2013). The individual teachers

shared their personal experiences with Google Classroom integration, and I used information from their interviews to collect data and analyze data that created a representation of the whole group.

I identified recurring themes in the analysis process. For the first step in theme identification, I created a spreadsheet, that included the significant statements, which was labeled with a transcript identification number from the original transcript. The second step of analysis included a spreadsheet in which I identified significant statements, with corresponding meanings inferred from the significant statement. In the third step in the analysis process I organized the formulated meanings into themes. According to Creswell and Poth (2018), during this stage of analysis I uncovered shared themes from all transcripts.

I identified significant statements and assigned codes, which I used to correlate with common statements and themes (Creswell & Poth, 2018). I used the qualitative data analysis program NVivo to organize and analyze the data. I determined themes based on repeated codes within the data and developed these into textural descriptions. The textual descriptions illustrated how teachers experience the phenomenon of Google Classroom integration. The expectation was to discover how new technology was introduced to the teachers, including what specific training they were given and examples of support experiences that were beneficial. The descriptions shed light onto how the experience of using Google Classroom impacted instruction in each teacher's classroom.

<h3 style="text-align:center">Trustworthiness</h3>

Creswell (2013) stated that trustworthiness is essential for qualitative research. Creswell noted that trustworthiness is achieved by ensuring results are credible, transferable, dependable, and confirmable. To ensure trustworthiness, I utilized the following strategies to address

credibility, dependability, confirmability, and transferability (Brewer & Hunter, 1989; Creswell & Poth, 2018; Schwandt, 2015; Shenton, 2004).

Credibility

Credibility, one part of establishing trustworthiness, allows the researcher to clearly link the research findings with reality to demonstrate the truth of the findings (Shenton, 2004). Credibility depends on the richness of the information gathered and on the analytical abilities of the researcher. Credibility is important because when a study is credible, internal validity is established and confirms the study measures or tests what is intended (Shenton, 2004).

One key strategy I used in the study was triangulation, which is the process of including multiple sources of data to validate accuracy. Triangulation was achieved by collecting information from three sources of data, including individual interviews, a focus group interview, and narrative documentation through the use of Google Slides. I used three types of data to attain a well-rounded opinion and attitudes about professional development, as well as to explain the culture in which the professional development produced positive results with technology integration (Schwandt, 2015). Triangulation assured that the research was valid and was on the same topic. I concluded member checking by inviting participants to review and respond to identified themes and conclusions from the study. This process increased the reliability of the study because it allowed participants to take ownership of their work and the conclusions drawn (Schwandt, 2015).

Dependability and Confirmability

Dependability, another aspect of establishing trustworthiness of the study, can be defined as the research design and its implementation, describing what was planned and executed on a strategic level, the operational detail of data-gathering, addressing the minutiae of what was done

in the field, reflective appraisal of the project, and evaluating the effectiveness of the process of inquiry undertaken (Shenton, 2004). Reflexivity is used as a way of focusing systematically on knowledge construction (Creswell & Poth, 2018). When practicing reflexivity, staying unbiased is crucial. In writing the conclusions, the researcher must be honest about any biases, values, or experiences with the research problem. This openness allows readers of the research to evaluate the trustworthiness of the researcher and his or her conclusions.

Confirmability, a third way to establish trustworthiness, must be practiced through auditing and reflexivity to ensure the research findings are the result of the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher. By creating an audit trail, I made a detailed process of the data collection, data analysis, and interpretation of the data. I supplied documentation for the topics that exhibited unique and interesting characteristics during data collection. When I journaled about my thoughts during coding, I made notes to provide a rationale for codes that were merged together as well as an explanation of the themes. The notes were used to create a way for others to follow the process. The role of triangulation in promoting such confirmability must again be emphasized in this context to reduce the effect of investigator bias (Shenton, 2004). Assumptions were connected to the findings, interpretations, and assertions in order for the data to be readily discernible (Schwandt, 2015).

Transferability

Transferability, the final aspect for establishing trustworthiness of a study, is defined as "being concerned with the extent to which the findings of one study can be applied to other situations" (Shenton, 2004, p. 69). Transferability refers to the possibility what was found in one context is applicable in another context. The information shared by one participant may be

transferable to other participants in correlation to themes and ideas found throughout the study. The transferability with the study related to other teachers from around the nation and how they apply the application of Google Classroom in their own settings. District leaders can take the information gleaned through the interviews and use it as a resource when planning the implementation of LMSs in their districts. I outlined the steps used in data collection in the research study clearly, in order to make sure the study is transferable.

Ethical Considerations

I established ethical considerations and implications for the research study. Before the study, I received Liberty University the IRB approval. By being aware of my role as the researcher and keeping the research separate from my daily interactions, I protected the data. I stored all data, including the data from the iPhone and iPad were stored in a locked filing cabinet, all electronic files were password-protected, and analysis was conducted without bias (Creswell & Poth, 2018). When interviewing the teachers, I remained quiet as they were answering and recorded their responses, not engaging in continued conversation. I created predetermined questions before the interviews to limit the communication between the participants and me. At the beginning of the interview, I took some time to get to know the participants, allowing trust to be built. Building an understanding of the participants' backgrounds and views helped me as the researcher comprehend their experiences. To ensure confidentiality, I utilized site and participant pseudonyms to allow participants to remain anonymous (Moustakas,1994).

Summary

Chapter Three included description of the qualitative research methods used in this transcendental phenomenological study to investigate North Carolina's elementary school

teachers' experiences with Google Classroom integration as a lived experience. The central research question was focused on understanding North Carolina elementary teachers' perceptions of the ways in which Google Classroom technology integration impacts classroom instruction. I created the sub-questions to further inquire about different ways educators use the application to teach the curriculum, as well as teachers' interactions with the LMS and the support they were provided when integrating Google Classroom into their instruction (Creswell & Poth, 2018). The final research subquestion was focused on the participants' attitudes relating to their experiences with Google Classroom. The research sites were elementary schools in the Piedmont Triad Region of North Carolina that are also Google Schools. I selected the participants purposefully utilizing a researcher-created screening survey to identify which individuals were best suited for the study. My role as the researcher was to collect and interpret the data and analyze the findings. Three types of data were collected, including individual interviews, a Google Hangout focus group interview, and Google Slide presentations. The data individual responses to open-ended questions, collaborative responses, and narrative images within the slide show created by each participant. I analyzed all data collected using a simplified version of Moustakas's (1994) modified Stevick-Colaizzi-Keen analysis. Triangulation, bracketing, member checking, and descriptions were incorporated into the study to ensure trustworthiness (Creswell & Poth, 2018). Pseudonyms, security procedures, and password-protected computers were used to protect privacy and follow all ethical protocols. Careful attention was given to establishing trustworthiness of the study. The results of the data analysis are presented in the Chapter Four.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this transcendental phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. The participants of the study included 12 teachers from a school district in the Piedmont Triad Region of North Carolina. The four major themes resulted from the transcendental phenomenological data analysis included (a) implementation of technology, (b) training and support for teachers, (c) impact on student understanding, and (d) attitudes about technology integration. In this chapter, the participants are described, the results are presented, the themes are explored, and the central research question and research subquestions are discussed. The chapter concludes with a summary of the results of the research.

Participants

I purposefully selected participants using a researcher-created screening instrument (see Appendix A). The screening instrument had four questions presented in an online Google Form and the participants answered the questions by using a drop-down menu. These data are reported only and not analyzed. To participate in the study, participants had to be a teacher in third through fifth grade, employed at a Google school, had to have taught in North Carolina, and had to have utilized Google Classroom for 2 or more years. I contacted all participants individually by phone and by email to inform them of their selection to participate in the study. After the teachers were invited to participate, they completed informed consent forms (see Appendix E) and I contacted them for an individual interview. Of the participants, 12 participated in the individual interviews, five participated in the Google Slides narrative documentation, and six participated in the focus group. The Google Slides narratives were completed individually and

shared online. The focus group was held through the Google Hangout platform and was conducted virtually.

The participants included elementary teachers representing all core content areas. The participants in the study were responsible for teaching all subject areas in their classrooms, including math, language arts, science, and social studies. Four participants were Grade 5 teachers, seven were Grade 4 teachers and one participant was a Grade 3 teacher. All teachers in the study were working in the Zinnia County School District (pseudonym). The average years of overall teaching experience for the 12 participants was 8 years. The average usage of Google Classroom was 2.8 years. Table 2 shows the teachers' experience teaching in North Carolina and the number of years using Google Classroom. (All participant names have been replaced with pseudonyms for them to remain anonymous.)

Table 2

Participant Education Information

Participant Name	Years Teaching	Current Grade Level	Academic Years Using Google Classroom
Carrie	8	4	10
Cindy	5	4	2
Don	18	4	3
Elizabeth	13	4	2
Ella	5	5	2
Kalie	9	5	2
Katie	6	5	2
Lanie	12	4	2
Lonna	2	3	2
Mary	5	5	3
Penny	3	4	2
Sue	13	4	2

Carrie

   At the time of the study, Carrie was a Grade 4 teacher with 8 years of experience and had

been with the school district for 2 years. Carrie has experience with second through fourth

grades. She had worked in a media specialist position and has experience integrating technology

into her lessons frequently. Carrie encourages technology integration in her classroom because

technology is a way to meet the needs of all students through differentiation. Carrie said she

"utilizes Google Classroom to select student groups to send select assignments for

differentiation." Carrie utilizes Google Classroom each day. She uses the LMS to provide links

for students, including Edulastic. She posts assignments online, conducts assessments, and

makes connections with different apps to make the navigation easier for students. Carrie

encourages her students to create and design projects for a variety of subjects. When learning

how to utilize Google Classroom, Carrie was assisted by her college professor in her masters'

program, the librarian at the school, her colleagues, and the ITF. Carrie suggested that it is best

to start with the basics of what the students are capable of doing in the LMS then expanding on

how the individual student can use the LMS specifically for lessons the instructors want to teach.

Carrie has been using Google Classroom for 5 years.

Cindy

   At the time of the study, Cindy was a Grade 4 teacher of all subject areas with 5 years of

experience, including 3 years of experience as a reading specialist followed by 2 years as a

Grade 4 teacher. Cindy's philosophy about education includes the idea every child can learn and

deserves the chance to learn in a safe environment. Cindy uses technology daily in the

classroom. By using the LMS Google Classroom, Cindy incorporates technology to review,

teach, and quiz students. Cindy integrates the math program Prodigy on Google Classroom,

designs exit tickets, distributes formative assessments such as Google Forms, and creates review activities. In Cindy's class, students create many things in Google Classroom. The students create slideshows for book reports through the integration of Google Slides within Google Classroom and students write multiple drafts of their writing through the integration of Google Docs. Regarding first-time users of Google Classroom, Cindy stated, "Hands-on training focusing on two or three areas would allow educators to be successful."

Don

At the time of the study, Don was a Grade 4 content teacher with 18 years of teaching experience. When on started in education, he worked as a reading intervention specialist. He was hired while under his provisional license, and actually was his own student teacher. Don has taught Kindergarten and Grade 4. He has been in the current school district for 3 years, teaching all core subjects in Grade 4. Don has an inclusive approach through which he focuses on the curriculum, but also seizes opportunities to focus on real-life situations, discussing how students should prepare to perform in life. Don has experienced technology changes over the years and believes it is an integral part of the classroom. Don stated, "I make it a point to find a delicate balance between using technology for the academics and the curriculum, versus using it to teach students technology." By seeing students' progress with technology, Don discovered students have become more prepared for the next steps in academics in relation to technology. Don no longer has to worry about the students operating and navigating the technology; he moves into the content quickly without having to stop for operational issues.

Elizabeth

At the time of the study, Elizabeth was a Grade 4 content teacher with 13 years of teaching experience. Elizabeth taught Grade 3 for 12 years, teaching all core subject areas. She

taught all Grade 4 core subject areas the year the study was conducted. Elizabeth has high expectations for her students and provides a loving teaching environment. She always tries to inspire students to set goals and to give their best efforts to reach their goals. Elizabeth stated, "I believe in a balance between incorporating technology and having students complete paper activities." Elizabeth uses Google Classroom in her class on a daily basis, which includes using math assignments, uploading problem sets, and creating online quizzes. Projects are completed in Google Classroom, which includes NC regions projects and character scrapbooks, designed in Google Slides. Links to content are distributed including Study Jams and Khan Academy. Elizabeth uses Google Classroom for Academically and Intellectually Gifted (AIG) students to differentiate the content by using extension questions, puzzles, and projects, which use higher order thinking. For example, the AIG students opened an ice cream shop to figure out fractions for recipes, and they utilized multiplication to determine the amount things would cost. Elizabeth has found Google Classroom is helpful in teaching the upper grade students because it is an easy way to send out information to students. Students are interested in the projects and they are given immediate feedback.

Ella

At the time of the study, Ella was a Grade 5 content teacher with 5 years of teaching experience. She had 3 years of experience teaching departmentalized science and 2 years teaching all core subjects in Grade 5. Ella stated "I focus on educating the students as being a part of the "village" working together collaboratively." Ella believes in educating students on technology as a part of being in a society that is everchanging. In her school, Ella was introduced to iPads and Smartboards, and then the school added Chromebooks for each child. Ella was introduced to the Chromebooks and the GSFE through a teacher orientation and

biweekly professional development workshops. Ella uses the GSFE to have students work together collaboratively, especially using Slides and Docs. She integrates Google Classroom frequently and uses the LMS to assign links, reading passages, math problem sets for the Eureka curriculum, virtual reality assignments, and project-based learning activities. Ella is grateful for her experience with technology in the classroom and for her positive experiences with Google Classroom. Ella has set up goals for the following year to continue to implement Google Classroom and to plan activities with ease.

Kalie

At the time of the study, Kalie was a Grade 5 content teacher with 9 years of teaching experience. Kalie has spent her educational career teaching in fourth and fifth grades. Before starting her teaching career, she spent time volunteering and subbing in different school systems and was a full-time, stay-at-home mother. Kalie explained that in her classroom, "I take the constructivist approach and let students take charge of their learning." She incorporates hands-on activities and encourages character-building exercises in the classroom. Kalie focuses on teaching the curriculum and elements of education, but also teaches character development. Kalie feels technology assisted with engagement in her classroom and helped the students to be creative with their work. She integrates technology daily and utilizes Google Classroom in many ways. To assist with the new mathematics curriculum, Kalie creates Google Slides for content review. Kalie also requires students to create Google Slides presentations for Word Masters and she sent out language arts assignments for News ELA through Google Classroom. Students take a virtual tour of Ellis Island for part of the social studies content and become a weather forecaster to show their understanding of the weather unit the class learned about. Kalie has a positive attitude toward the integration of Google tools and was excited to learn more.

Katie

At the time of the study, Katie was a Grade 5 teacher with 6 years of teaching experience. Katie taught in fifth grade and second grade in all subject areas. She teaches fifth grade and focuses on the subjects of math and science. Katie works to develop a curriculum that allows students to research, learn, and stay motived to continue to learn more. She shared, "I encourage students to continuously ask questions and learn to dig deeper into the content." Katie has the students set goals for themselves, which they track in relation to different online programs. Digital learning is used in Katie's class by incorporating activities on the Chromebook. The students use the tool to communicate, learn, research, and dive deeper into topics. Katie learned how to implement digital learning and Google Classroom through multiple PD opportunities in the school district, including online blogs, the district ITF, colleagues at school, edu-focus [educational focus group] opportunities, and after-school workshops. Her Google Classroom is set up by classrooms for each subject area for students to find the content with ease. Katie uses the Google classrooms for content, links, communication, resources, assignments, assessment, extra credit, and as a portal for absent students. She is a big advocate for using Google Classroom daily and suggested educators be given a basic introduction to get started.

Lanie

At the time of the study, Lanie was a Grade 4 teacher with 11 years of experience with the school district. Lanie has taught fourth grade in the same school for her entire teaching career, teaching all subjects. Lanie feels technology helps to keep students engaged and allows them to work independently to practice skills on their own level. She believes finding a balance between digital and non-digital activities is vital to the classroom setup. Lanie stated, "I use Google Classroom daily to send links to students, assign Google Slides and Google Docs as a

reference, and present a list of activities for early finishers." Google Classroom is also utilized for interactive science websites, creating collaborative projects in Google Slides/Docs, and for assigning quizzes. Lanie posts math videos, websites, and games for students to use for practice and review. Within Google Classroom, Lanie allows students to create presentations to identify story elements, cause and effect, and report on different chapters of the book they were reading. She keeps students engaged in the content by having them research and create their own content based on what they have learned. Lanie has used Google Classroom as an LMS for 2 years.

Lonna

At the time of the study, Lonna was a Grade 3 content teacher with 2 years of teaching experience and teaches all subject areas in her classroom. Lonna utilized the GSFE when she was in college and has discovered many ways to utilize the applications. Lonna focuses on being energetic, integrating as much movement in her classroom as possible. Lonna said, "Students were engaged and caught on easily when assignments integrated technology, but it was difficult to initially train the students when starting out with the technology usage." She uses digital learning in her classroom to expand students' learning. Lonna uses Google Classroom as a way to post assignments and to create links for her class Symbaloo. She utilizes Google Classroom to send out science activities on landforms, for writing activities, and to give students feedback on their assignments. Lonna said she uses Google Classroom all the time.

Mary

At the time of the study, Mary was a Grade 5 content teacher with 5 years of teaching experience. She taught Grade 4 and Grade 5 in all content areas. Before Mary began her teaching career, she worked in logistics for 7 years and in the insurance field for 8 years. Mary had plans to transition into the media specialist job the year after participating in this study.

Mary's teaching philosophy is that all students are capable of learning; they may not learn the same exact thing, but she feels they could learn character traits, curriculum, or even manners. Mary utilizes technology as a research tool that students can use in their learning, including virtual field trips and even more. Mary uses Google Classroom to conduct spelling tests, which gives instant feedback for the students and presents their grades. Google Classroom is the hub of her own classroom; when the students come in, they know to go to Google Classroom for any announcements. Mary called Google Classroom the "coffee shop of the day." Mary sends out daily assignments, including projects for the students to create, examples of expectations, links, and projects where students make their own lessons as if they were the teacher. Mary explained giving students the teacher responsibility in the class encouraged them to be more engaged in their learning. Mary utilizes Google Classroom as a hub to communicate with students and stated, "I love using the LMS."

Penny

At the time of the study, Penny was a Grade 4 content teacher with 2 years of teaching experience. Penny has taught Grade 2 and Grade 4 in all subjects. Penny believes all students, no matter their background or where they come from, deserve to learn in the ways they feel most comfortable, and students should be provided with multiple avenues to get to the same goal. Penny stated technology helps because students have to have 21st century skills outside of school, and when incorporating technology into her own classroom, students are able to use resources collaboratively. Penny uses Google Classroom for posting math problems and news articles. She said, "I incorporate character digital scrapbooks for student design and use Google Classroom as a way for students to access their make-up work when they were absent." Penny utilizes Google Classroom to post Quizlet links, assessments, and for integrating Google Forms.

Penny believes Google Classroom has provided a way to make students' and teachers' lives much easier while developing independent learners.

Sue

At the time of the study, Sue was a Grade 4 teacher for math and science, with 13 years of experience in education. Sue began her teaching career teaching in Grade 5 math and science for 5 years. She then taught a combination class for Grades 4 and 5 math and science for 1 year. Next Sue transitioned into teaching preschool for 1 year. After teaching preschool, she taught Grade 3 math and science for 3 years. Sue then moved back to Grade 5 to teach math and science. The past year she taught Grade 4 math and science. Sue focuses on teaching students to utilize their strengths to equip them with what resources they need to be successful in life. Sue found a need for a balance between the use of technology assignments and paper assignments in the classroom. She stated, "I utilize technology as a tool in the classroom, rather than just for play." In her classroom, Sue, uses Google Classroom as a way to send out links, to post assignments including interactive Google Slides activities, and for students to create their own products. She also uses Google Classroom for enrichment activities, choice boards, and creating products. Sue said through technology integration, she is "able to leave the big stacks of paper at school and develop activities where students can be more creative."

Results

Following are the themes and subthemes that were developed while analyzing the data. An explanation of how each theme was used to answer the research questions follows the discussion of subthemes. This study was based on one central research question and three research subquestions that addressed North Carolina elementary teachers' lived experiences with Google Classroom integration. The data analysis produced 35 codes, which were grouped in 12

subthemes that fit under 4 overarching themes. The four major themes presented in this chapter

include (a) implementation of technology, (b) training and support for teachers, (c) impact on

student understanding, and (d) attitudes about technology integration (see Table 3). Each major

theme is discussed using the subthemes and textural and structural descriptions, or codes, to

illuminate the experiences of the participants.

Table 3

Major Themes Emerging from Frequent Codes

Codes	Themes	Definitions
Classroom layout, flexible seating, visible screens, collaborative grouping	Implementation of technology	The process of planning the integration of technology integration specifically, Google Classroom
ITF, colleague support/lead teacher, professional development, online training	Training and support for teachers	The assistance given during the implementation process and after the initial integration of Google Classroom
Increased creativity, advanced understanding, learning modalities, student work products, quicker access and feedback	Impact on student understanding	How classroom instruction was changed and the experiences of student understanding of content
Beliefs about technology integration, technology integration assists, hinderances, positive attitudes	Attitudes about technology integration	Teachers' own feelings of how comfortable they are with technology integration based on their experiences/training

Major Theme 1: Implementation of Technology

The first major theme that emerged during data analysis reflected the participants' shared

experiences in the implementation process of the LMS Google Classroom in their own

classroom. Two subthemes supported the first major theme: initial training and classroom

layout, each consisting of several codes (see Figure 1).
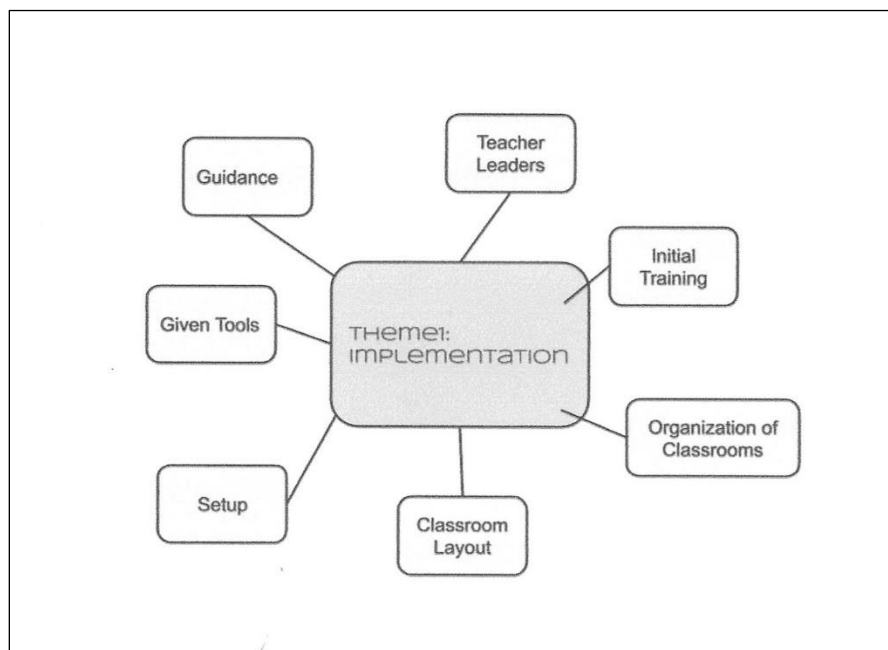
Figure 1. Major Theme 1: Implementation of technology, indicating key phrases by participants placed in a theme cluster.

Teachers received their Chromebooks 4 months earlier than the students did to get the

basic training and learn to utilize them on their own before the Chromebooks were distributed to

students. To implement the usage of the Chromebooks and Google Classroom, Ella stated,

> The district gave us multiple professional development [PD] opportunities. We have a
>
> technology coordinator for the county that comes in and does PDs with us. We're asked
>
> because we know we've been given these tools, we've had a couple of orientations how
>
> to use them, especially just when rolling out initially.

The implementation process was conducted over 1 year. The lead teachers were trained

and then they shared ways to utilize the technology with other teachers through local PD

workshops. Mary stated,

> A small group of us went to a major training at the Friday Institute in Raleigh and we

learned all about Google, all about how to introduce it to the teachers and then how to use

it. Then we brought it back to the school. We had big sessions, professional

development sessions with the teachers, where we taught them things on Google.

To offer continual support, the technology facilitator worked with the media specialist to support

the implementation. Regarding the introduction of the GSFE at the elementary level, Kalie

explained,

Select teachers were trained with specific training for Google. And then, they were like

our mentors that kind of handed down some of that training to the faculty and staff at our

school. And, of course, the technology facilitator played a major role in that, coming

weekly and just kind of guiding the teachers through some difficult challenges that we

have with Google.

Throughout the implementation process, the participants had both positive and negative

experiences. Don stated, "I think within the district working with teams of people and then

funneling down from there and helping one-on-one allows people to learn and you kind of see

what their knowledge base is and go out from there" Even though many of the experiences were

positive regarding the implementation of one-to-one (1:1) Chromebooks and the implementation

of Google Classroom, teachers experienced several difficulties. One of participants mentioned

the high turnover rate within the county had caused the teacher-leaders who were trained from

the top down, to transition to other jobs, thus leaving no one at the school level who was trained.

Sue stated, "I would almost say that more than one or two people at each school need to be

trained. I think the trained person at our school left, so having more people trained is a good

idea." Having a leader who is trained to support and guide in the implementation process is

extremely valuable when implementing new initiatives.

Another difficulty shared by participants was that many of their colleagues were intimidated initially. When attending trainings or PDs educators shared many times, they felt the presenters expected them to know more than they actually have knowledge about. In large groups, they shared that a variety of skill levels caused them to be intimidated about their understanding of topics. Don stated,

> A lot of our colleagues are almost intimidated by technology integration and you know they are. And they really don't need to be. I'm thinking that the way . . . that the group meeting is intimidating itself. We go in with a certain amount of confidence with technology going in, but to get some of these who are less confident into almost a group bigger than four or five people, they are kind of intimidated by the whole thing. And I think that might be a turn-off for them. And they come in with a mindset that may not be as positive as it should be. You know, the way we do it when you go one-on-one with some of some of the folks. That may be an approach that is necessary.

Providing small group settings rather than large groups can be more comfortable for those who are learning how to integrate technology and for those who are nervous about the technology.

For training to be beneficial, the conditions have to be favorable. Lanie explained some of the training at her school was

> in a big staff meeting at the end of the day when everybody already had something going on. I think we need to look at that, too: If they're already stressed about technology, you're throwing all this information at it and they're ready to go home and you're ready to go home so they're not really going to be asking a lot of questions.

Taking daily schedules and the class sizes into account can be valuable in making the training successful for educators. Working with the educators who are struggling and scheduling small

group sessions allows for individual questioning and guidance. Understanding the experiences of the participants as well as how they defined implementation was important.

Major Theme 1: Subthemes

Two subthemes supported the first major theme of implementation of technology: initial training and classroom layout. Each of these subthemes consisted of several codes. See Table 4 for the subthemes and codes of the first major theme.

Table 4

Theme 1: Implementation of Technology

Theme 1: Implementation of technology	
Subtheme	Code
Initial training	Learning as a group of teacher-leaders (9)
	Starting the process (7)
	Friday Institute (5)
	Train the trainer (5)
	Given tools to try (4)
Classroom layout	Flexible seating (8)
	Collaborative grouping (7)
	Visible screens (6)

Subtheme 1: Initial training. As a subtheme, the initial training was a major component that had an impact on the acceptance and implementation of digital learning integration throughout the district. Frequent codes in this subtheme included learning as a group of teacher-leaders, starting the process of technology integration, training at the Friday Institute, training the trainer, and trying out new tools in the classroom. Teachers were selected to learn as a group of teacher-leaders. The leaders functioned as a vital part of the integration of digital learning within the school district.

Learning as a group of teacher-leaders. This first code under Subtheme 1 within Theme 1 appeared nine times in the data. Teachers were selected from the district to be technology teacher-leaders. The technology teacher-leaders were selected based on their skill level and how they integrated technology into their own classes. The leaders met together once a month for training on Chromebooks, applications, and digital resources. The initial training took place at North Carolina State University's William and Ida's Friday Institute for Educational Innovation. Molly shared, "The initial training was to educate the staff about the kick-off of the 1:1 Chromebook initiative within the school district." The training was for the technology teacher-leader's cohort.

Starting the process. To start the initial process, which was the second code under Major Theme 1, Subtheme 1, and appeared seven times in the data, teacher-leaders were trained at the Friday Institute. Technology teacher-leaders were invited to attend a conference where there were several presentations on implementing the Chromebooks, utilizing the applications, and even integrating the technology into the curriculum. Kate shared, "Teacher-leaders were asked to bring in previous content materials in which they had used to teach the standards in an effort to use material they already had and not overwhelm them." The teacher-leaders were then asked to use the substitution, augmentation, modification, redefinition (SAMR) model to begin transitioning their lessons into digital learning activities. They were advised transform and enhance their curriculum content. Molly shared, "Collaboratively, the teacher-leaders worked together to create digital content that could be used in the classroom." To continue with the process, all of the teachers throughout the district were given Chromebooks 6 months before the students received them in order to familiarize themselves with the devices and work with the ITF

and curriculum coaches to develop digital content. Together, the elementary teachers were able to create content and share it across the district.

Friday Institute. For the third code appearing five times under Major Theme 1, Subtheme 1, Kate shared, "District teacher-leaders were selected to attend professional development at Friday Institute for Educational Innovation." The district teacher-leaders were guided by a digital learning coach. The training was held over a 2-day period. On the first training day, the teacher-leaders could pick and choose the workshops they wanted to attend. Kate explained, "Leaders were introduced to the basics on the Chromebook but were also introduced to a variety of digital tools that could be used in the classroom. Tools included Google Drive, Google Docs, Google Slides, Google Forms, and Google Sheets." Teacher-leaders could also attend workshops on virtual reality and Makerspace implementation. A data base of apps was also shared with the teacher-leaders as a way to meet teachers' needs in the classroom.

According to Kate, "On the second day of training a boot camp was held. The set up was open-ended and very laid-back. The technology teacher-leaders were able to go to a session based on the topic." The participants in the class wanted to share their knowledge or learn more about the specific application. The bootcamp sessions were run similarly to a discussion based on questions and answers.

Train the trainer. The first initial training for the elementary school teachers was conducted by the technology teacher-leaders, the fourth code under Major Theme 1, Subtheme 1, appearing five times in the data. The leaders were trained at the Friday Institute. Technology teacher-leaders trained the elementary staff at the school levels as the part of the school plan for implementation. Molly shared, "The elementary school teachers were shown basic apps teachers

could utilize in their classroom and were also trained on how to utilize Google Apps within the

GSFE." As a part of the train-the-trainer initiative, the focus was to guide and lead the teachers

and not to overwhelm them with the process.

   Given tools to try. In the initial implementation period, teacher-leaders were given tools

to try out in their own classrooms, the fifth code, appearing four times in the data, under Major

Theme 1, Subtheme 1. Kate shared as a teacher-leader,

> The teacher-leaders started to set up Google Classroom and SeeSaw as a LMS to assist in
>
> learning. Teacher-leaders focused how the assignments were distributed to students and
>
> how the applications were integrated. They developed and found content online that
>
> could be used in these LMSs. Teacher-leaders also utilized the GSFE and other digital
>
> resources.

In the initial implementation process, many of the technology teacher-leaders trained their

students to be helpers. At times when teachers needed assistance or other students need

assistance, the helper students could assist in the classrooms also. The elementary school

teachers would pose questions if there were any problems and the technology teacher-leaders

would investigate the issues. Katie shared, "When we were given the tools to try, it was based

on the philosophy, implement where you can and build from there."

   Subtheme 2: Classroom layout. As the second subtheme under Major Theme 1,

classroom layout was a major component that had an impact on the functionality of the

classroom and made the working environment more conducive for students to work. Through

different experiences with students working on digital projects, teachers have found specific

classroom layouts are more conducive to the working environment.

   Frequent codes in this subtheme included flexible seating, visible screens, and

collaborative grouping. Flexible seating allows for students to move around while completing their work. A set up with screens that are visible to the teacher allows for monitoring throughout the working environment, and collaborative grouping presents the opportunity for students to work closely on projects by sharing ideas.

     Flexible seating. This first code under Subtheme 2 of Major Theme 1, appeared eight times in the data. Participants shared that as students are using the Chromebooks and working on their assignments in Google Classroom, they provide multiple spaces for students to collaborate together and be as comfortable as possible. As shown in Figure 2, Katie explained, "Students have flexible seating opportunities and have a chance to form their own groups (whether ability based or otherwise)". Katie also stated, "The cozy corner is often used for stations and students are able to go there and work on independent projects when they have finished with classwork."
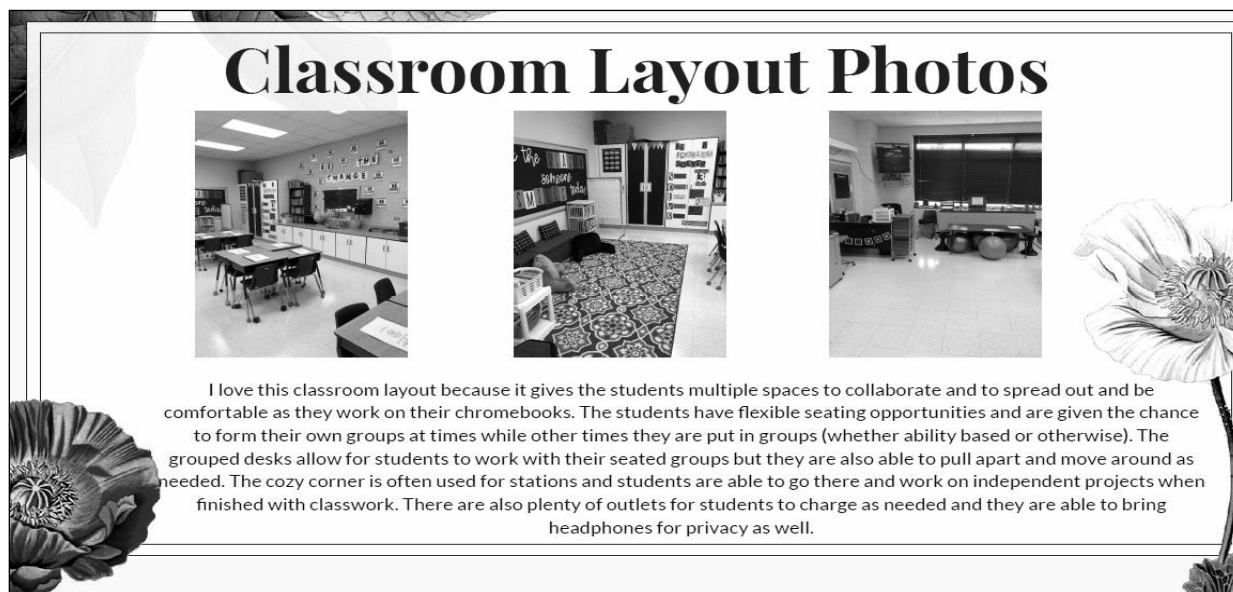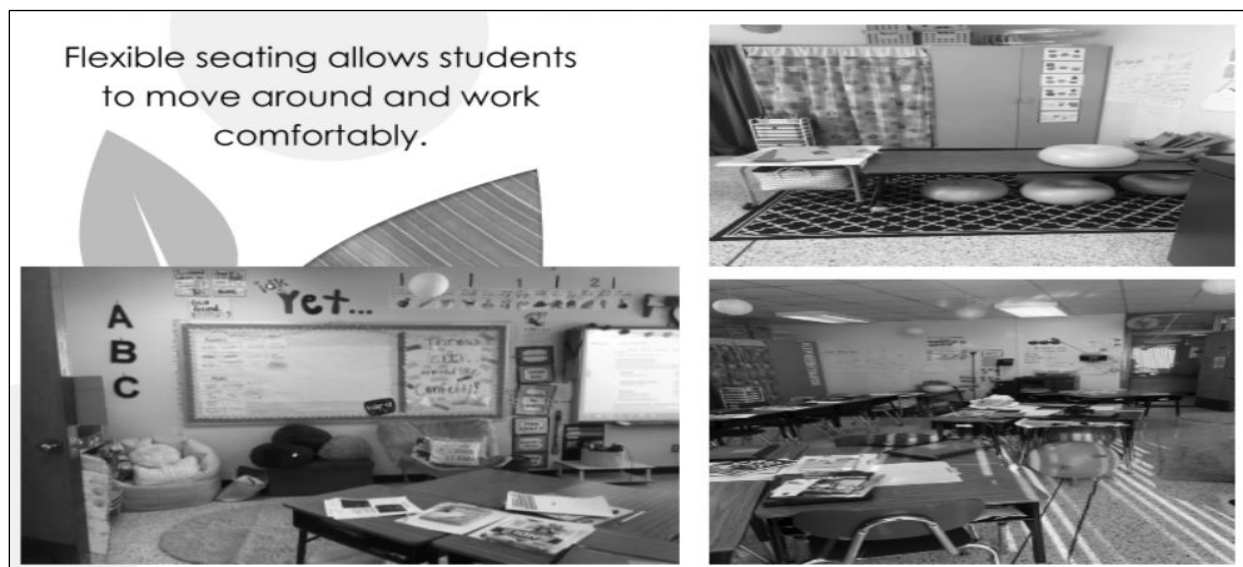

Figure 2. Katie's classroom layout.

Figures 3, 4, and 5 depict the classroom layouts and explanations for Mary, Lonna, and Elizabeth's classrooms, respectively.

Figure 3. Mary's classroom layout.

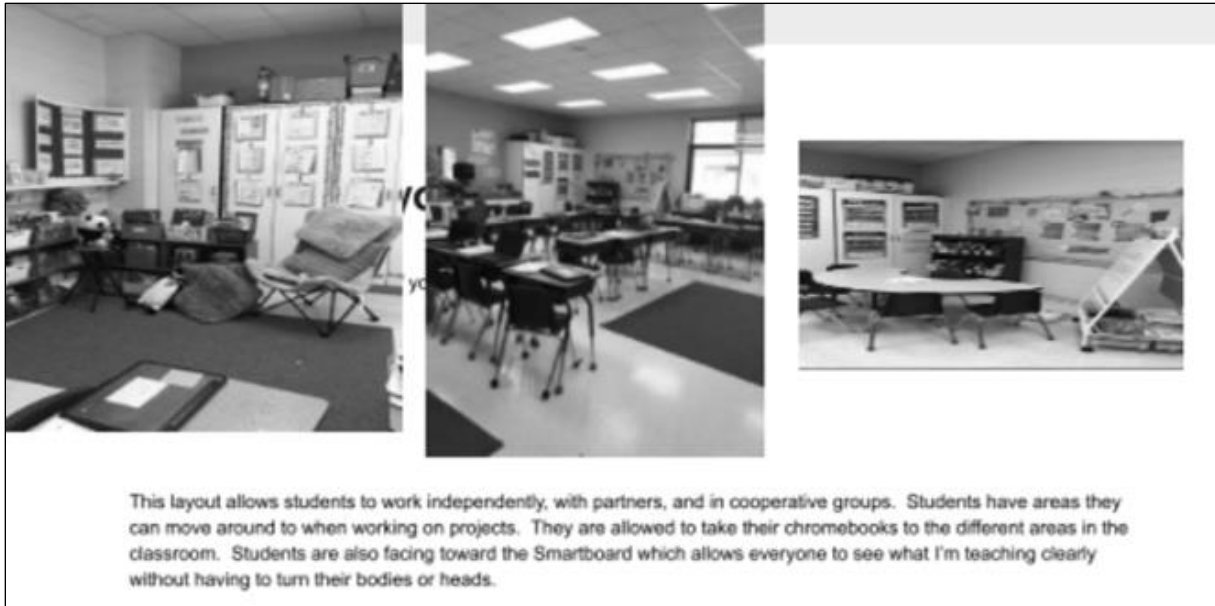*Figure 4.* Lonna's classroom layout.

This layout allows students to work independently, with partners, and in cooperative groups. Students have areas they can move around to when working on projects. They are allowed to take their chromebooks to the different areas in the classroom. Students are also facing toward the Smartboard which allows everyone to see what I'm teaching clearly without having to turn their bodies or heads.

Figure 5. Elizabeth's classroom layout.

      Collaborative grouping. One code under Major Theme 1, Subtheme 2 was collaboration among students. For students to have the opportunity to collaborate together, their classroom layout has to be conducive to group work and teams, with each student having a Chromebook and the assignments on the LMS Google Classroom. The students can communicate their ideas and thoughts clearly by sitting near each other, even though they each have a Chromebook. Mary discussed how she taught a geography unit in which students collaborated together in Google Classroom using Google Slides:
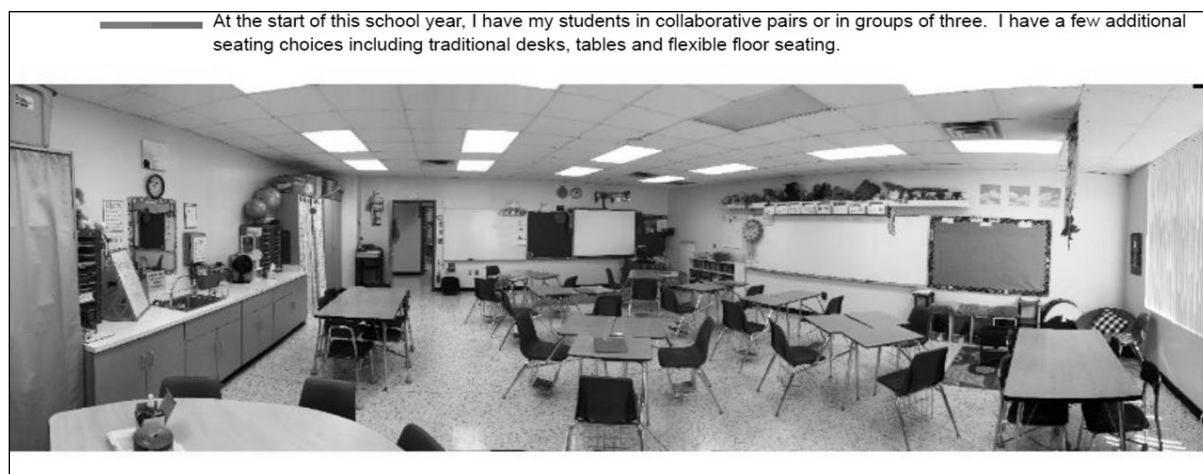
      Students were collaborating together online with Google Slides and some of the students used Play-dough on their desks to create a model of the geographic location. They labeled it and then they took a picture and then they presented it that way.

Katie stated,

      For our science this past year, we did a lot of science projects where they would have to do research about a certain topic that we were learning, like especially ecosystems. So, in the ecosystems unit there were seven biomes, and so the students used Google slides, and

created Google slides for each different biome, and there were collaborative slides, and

they had some independent ones to do as well. When they were posted in the classroom,

they could use those as the collaborative slides, and they could all log on, and see them,

and edit those. Then once they were finished, they could also post their slides on there as

well to let the other see. It was really cool to see them come together to do those,

because you get a little hesitant when you have them all working on the same thing, but

they weren't.

Figures 6, 7, and 8 depict the layouts and explanations for Ella, Don, and Sue's classrooms,

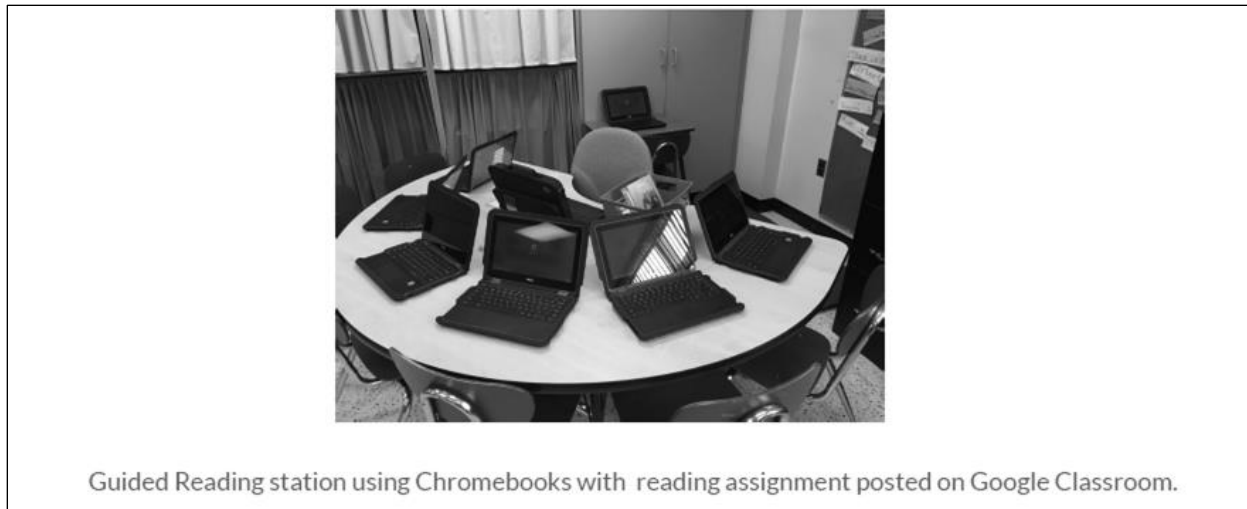respectively.

Figure 6. Ella's classroom layout.

Guided Reading station using Chromebooks with reading assignment posted on Google Classroom.

Figure 7. Don's classroom layout 2.

Describe why you like this setup for classroom technology integration

I like this layout because I still have access to all the students, while the students can easily access the technology of the classroom. This also makes it easy for helpers to get to their classmates.
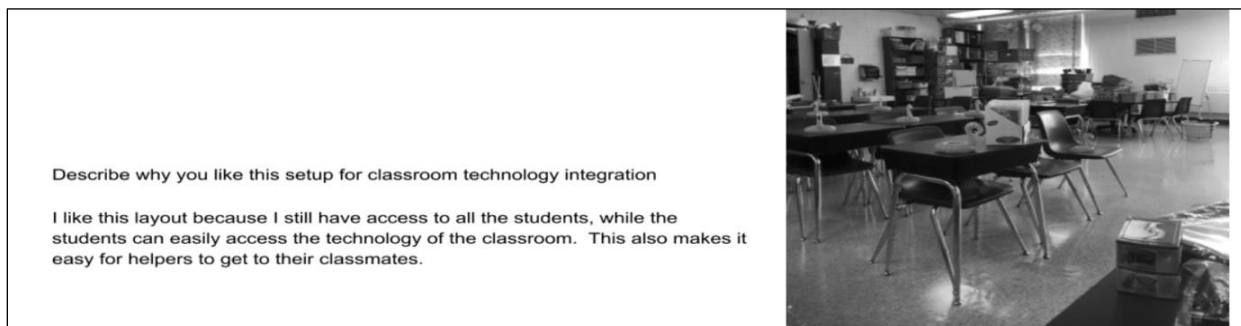
Figure 8. Sue's classroom layout.

Visible screens. This third code under Major Theme 1, Subtheme 2 appeared six times in the data. Monitoring students' activity and progress on assignments is extremely important. Teachers expressed a variety of classroom layout preferences to enable teachers to focus on viewing the students' screens, tracking their progress, and giving them feedback. The horseshoe layout, traditional rows, and rows facing the board were presented by participants (see Figures 9 and 10). According to Cindy, "Students were able to work in teams and face the smartboard."

I like this set up for integrating technology because it allows me to easily see what each student is working on. It is also easy to play review games such as kahoot in teams when they are arranged this way.

Figure 9. Cindy's classroom layout.

I moved my students into the horseshoe pattern because it helped them not talk as much and since I use goguardian, I do not have to physically monitor their computers.

Figure 10. Cindy's classroom layout 2.

The horeshoe layout was important for Cindy's classroom as she explained, that the setup helped students to not talk and she did not have to physically monitor students because of the use of GoGuardian. Figures 11 and 12 depict the layout and explanations for Don and Lanie's classrooms, respectively.

With this particular configuration, students have a clear view of the SMART Board display. Previous setups made viewing the board difficult for some students. Using larger more level flat top desks also enhance the experience by providing a useable area for the use of Chromebooks by individual students with or without the use of the SMART Board.

Figure 11. Don's classroom layout.

In my classroom, I prefer to arrange my student desks in traditional rows. Students are able to move their chairs to work together for group activities, but still have their own space for independent work. I am able to see the students' screens from a quick glance at the back of the room. Students have a clear view of the SmartBoard at the front of the classroom.

Figure 12. Lanie's classroom layout.

Major Theme 2: Training and Support for Teachers

The second major theme that emerged during data analysis reflected the participants' experiences with two subthemes—training and support—which emerged from several codes (see Figure 13). Shared experiences with professional development were beneficial and the teachers gave feedback, which then led to additional support. Many participants noted their training started at the district level with a team of teachers who had attended the North Carolina State's Friday Institute. Four of the participants were part of this team. The team attended PD throughout the year to gain additional support on a variety of topics. The team then dispersed and held PD classes at the school levels, related to what they had learned.
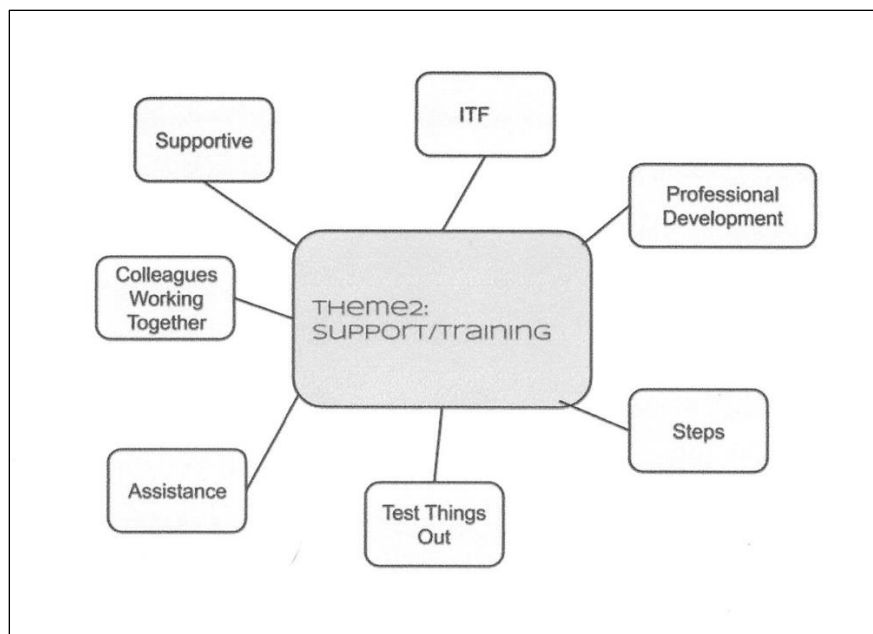
Figure 13. Major Theme 2: Training and support for teachers, indicating key phrases by participants placed in a theme cluster.

Participants shared the ITF came once a week to their school. The ITF held hands-on classes to instruct the teachers in different topics and walked them through different technology processes, including setting up their Google Classroom, creating assignments within Google Classroom, and designing assignments for students to complete within their classes' Google Classroom. Understanding the experiences of the participants as well as how they defined training and support was important. The two subthemes of training and support, each with several codes, supported the second major theme (see Table 5). Table 6 shows various types of training and support mentioned by participants.

Table 5

Theme 2: Training and Support for Teachers

Theme 2: Training and support for teachers	
Subtheme	Code
Types of training	Friday Institute (5)
	Developing school plans for implementation (8)
	Lead teachers held workshops within the school level (5)
Types of support	ITF (12)
	Colleague support (9)
	PD (11)
	Teacher-leader help (9)
	Online support (8)

Table 6

Types of Training and Support Mentioned by Participants

Participant	ITF support	Colleague support	PD	Teacher-leader help	Online support
Carrie	X	X	X		
Cindy	X		X		
Don	X		X	X[a]	
Elizabeth	X		X	X	
Ella	X	X	X	X	
Kalie	X				
Katie	X	X	X	X[a]	X
Lanie	X	X	X	X	
Lonna	X	X	X	X	
Mary	X		X	X[a]	
Penny	X	X	X	X	
Sue	X	X	X	X	X

[a]Denotes participants who were teacher-leaders in the training process.

Major Theme 2: Subthemes

Theme 2 was supported by two subthemes. The first was types of training, which emerged from three codes. The second was types of support, which emerged from five codes.

Subtheme 1: Types of training. The participants emphasized the importance of various types of training for implementation of new technology, the first sub-theme under major theme two, as shown in Table 5. The subtheme of different types of training was a major component that had an impact on the implementation process of digital technology in the schools. Some teachers received training at the Friday Institute. The teacher-leaders developed plans for implementation throughout the district and the lead teachers held workshops at the elementary schools.

Frequent codes in this subtheme included the training at the Friday Institute, developing school plans for implementation, and lead teachers hosted workshops throughout the district. The Friday Institute hosted many PD workshops on technology integration and was a major part of the training for teachers in the school district. The trainings covered escape rooms, edu-focus groups, question and answer sessions, app smashing, digital resources, and content development.

Friday Institute. District teacher-leaders were selected to attend professional development at North Carolina State University's William and Ida's Friday Institute for Educational Innovation. The district teacher-leaders were guided by a digital learning coach. Don shared the following:

> After the initial 2-day training at the Friday Institute, the digital learning coach came to the district to host professional development for the teacher-leaders. Each month, the teacher-leaders met together for training. At the end of the year, the teacher-leaders attended an end of the year technology bash at the Friday Institute to wrap up the year.

Developing school plans for implementation. At the district level, the technology teacher-leaders collaborated to create a plan for implementation and sustainability of digital learning within the elementary schools. A meeting was held for the teachers to develop the plan. Kate shared, "First, the teacher-leaders prioritized the content and applications. The digital tools were selected by content integration capabilities, ease of use, and skill levels needed. The trainings were also based on school needs and teacher comfort level." The technology teacher-leaders wanted the elementary teachers to have options from which they could pick and choose. Second, teacher-leaders planned PD needed within the elementary school levels. Each group of teacher-leaders created a PD presentation and then shared the material with each other. They shared both the content and the presentations to be utilized again at the school levels. Last, the technology teacher-leaders created a schedule and divided the roles necessary to teach the PD classes.

Lead teachers held workshops within the school level. The technology teacher-leaders prepared and taught the PD sessions to the elementary school teachers. The sessions were held after school. In many of the sessions, the applications were not only shown, but the teachers also were able to use them to see exactly how they would work in the classroom. For example, Molly shared, "In training on Google Classroom, teachers set up their classroom, imported their students and created assignments as a way to start utilizing the LMS." The technology teacher-leaders were able to gain feedback from teachers who were already using the applications in their classrooms. In collaboration with the ITF, the teacher-leaders were able to get an idea of what the next steps would be in relation to the topics that teachers wanted to learn about.

Subtheme 2: Types of support. In addition to the types of training, Subtheme 2 emerged from frequent statements about types of support. Support for teachers implementing

technology is crucial. This subtheme emerged from a cluster of the following five codes. This subtheme focused on the types of support that had an impact on the teachers' willingness to implement technology in their classrooms. Many participants shared they felt with the support they received enabled them to develop confidence in what they were doing in their classrooms. Frequent codes in this subtheme include support from the ITF, colleague support, PD, teacher-leader help, and online support.

   Support from the ITF. The ITF was involved at the school level once a week to support teachers and to teach PD. The ITF works with the school staff to make effective use of computers and technology in instructional programs district-wide. The ITF assists in the development of short- and long-range plans for digital learning integration within the school. Participants expressed the support of the ITF had aided in their implementation of Google Classroom. According to Ella,

>   Our technology facilitator actually made our own Google Classroom website where she would post our PD presentations, which was normally a Google Slide presentation that she actually went over with us. We could follow along or get back to it as we needed it. Everything we needed to go back to was posted in that document as well as emailed to us in case we needed to locate that. I don't remember the order in which we were presented about the Google Suites, but it started out with Google, with the email, Google Classroom, Google Slides, Google Docs. Google Forms and the updates to the forms. We had continuous PD on how the Google has updated for teachers and Google Classroom in general.

Elizabeth also shared the following:

>   The [ITF] was very supportive when she was at our school. We could count on her. Not

having a librarian was hard for us because we didn't really have anyone if the ITF was

not there. But my coworkers and I would work together. And the younger teachers are

very good at Google Classroom, so they could pretty much show me, if I had questions

about something.

In each one of the interviews, the participants mentioned the training and support they were

given from the ITF. Katie stated, "Within the school system they have like the coordinator that

comes through, and does our sessions, and asks what we need, and she'll kinda teach us based on

that, what we ask for." The ITF took the participants' needs and wants into consideration to

provide information on the topics that teachers would utilize in their classrooms.

The Google Slides narrative showed different PD sessions that were provided by the ITF,

including Digital Choice Boards for Differentiation, Interactive Read-alouds, Podcasting, Quick

Response (QR) codes, YouTube in the Classroom, Animal Adaptation Stations, Storybird,

Chromebook Basics and Management for students, as pointed out by Don. All of these courses

can be utilized in Google Classroom.

Colleague support and teacher-leader assistance. When implementing Google

Classroom, many teachers were able to seek out assistance from their colleagues or teacher-

leaders within their school building. These two codes were similar enough to blend into one

code for discussion. In the Zinnia County School District, the teacher-leaders were selected by

the technology department to attend year-long PD sessions to train them on multiple aspects of

digital integration. The teacher-leaders met at least five times throughout year for the PD

provided by North Carolina State University's Friday Institute for Educational Innovation. The

teachers then worked together within their school levels to plan the trainings they would offer to

the other teachers at the school level. The teacher-leaders planned hands-on activities to

introduce the other educators to the Chromebooks and get them acclimated with Google Suite Applications. Three participants were classified as teacher-leaders for the district.

After the teachers were taught how to utilize Google Classroom, many of the participants were able to collaborate together to develop activities and troubleshoot difficulties. Lonna shared that she worked together with her colleagues to figure out any unknown questions related to Google Classroom: "We work together, definitely to figure it out." Ella also stated, "If we didn't know it automatically, we'd figure it out together. But that was more like when we needed to figure out how to force copy something. Yes, we did work together before we had to reach out."

One of the teacher-leaders shared her experience of training at her school level. During the focus group, Mary stated,

> When training, go slow and steady. Don't assume that if you say, "Just open up your Google Drive," that people even know what a Google Drive is, because so many of our teachers, like, they don't know what to do. When I say "Go to your Google Classroom," they look at me and shake their head yes. But, really, they don't know what I'm talking about.

Taking time and going step-by-step allows individuals with lower confidence to build their skills and practice the technology themselves. Mary explained that allowing teachers to build confidence is an important skill: "The more you practice something the knowledge base becomes wider and then you are more comfortable. And I think once you've been to trainings like that, you become more comfortable with admitting that you don't know everything."

Other support was discussed in reference to teachers working together with their colleagues as a means of collaborative planning. Teachers would create Google Forms, which

were used as an assessment for students in Google Classroom. They would then share them with others by making the forms available to their colleagues in the same grade level. As Katie shared, "Coworkers that see something share their ideas during planning time and we also have the edu-focus groups, where the district does edu-focus sessions, where the teachers can teach other teachers about stuff that they've learned in a group session.

Several of the participants worked together outside of school to spend time loading assignments into their Google Drive that allowed for connection with Google Classroom. When assignments are were created, they could be shared with others for use in their classrooms or further development. During the focus group, Ella stated,

> I think that overall, it's been really nice to have spent some time this summer loading certain documents onto Google, Google Docs, and then being able to pull that up straight in the Google Classroom, the problem sets from Eureka and the exit tickets. I think if you have someone that you can reach out to like the ITF or colleagues to help you upload some of those resources and see how to use them, that was especially helpful for us to see, "Hey, if you upload all of these then you have that, the kids don't necessarily write on immediately like they would in Edge Elastic," but I think that they still have the material presented in front of them the same way that they would on EOG [end of grade test] and they would still have to manipulate it however they would need to.

Collaborating with colleagues to develop curriculum materials makes shared work easier and allows for more rigorous activities to be developed.

PD. To inform educators about the new and upcoming technology and digital learning opportunities related to Google Classroom, they attend PD hosted in a variety of places, including the school level, district, outside of the district at workshops, and also at conferences.

Carrie discussed how she attended the North Carolina Association of the Gifted and Talented

conference. At the conference, educators were taught ways to challenge and enrich the lives of

academically gifted students, and digital learning was a part of the conference sessions. Carrie

said, "A lot of what I learned to do on it, I kind of found at the AIG Conference [NCAGT], and

then, like in the past year, we've had the instructional facilitator come in and teach us different

things to use in Google Classroom."

The North Carolina Technology in Education Society (NCTIES) held another conference

referenced in relation to becoming proficient with the use of Google Classroom. The NCTIES is

a membership association for educators and educator leaders engaged in advancing

excellence in learning and teaching through the effective use of technology. At the

conference, educators and specialists present up-to-date information on digital learning.

Groups of students also present a variety of projects that they have created. At the NCTIES

conference, multiple sessions occur simultaneously, so teachers can attend workshops based on

their interest and choice. As Katie shared, "I've learned about Google Classroom through a

couple of things, especially the NCTIES conference, I went to a bunch of Google classroom and

Google focus sessions there."

Katie shared her experience of getting started with Google Classroom in a school PD

session:

Teachers went into their Google account and created a Google Classroom. This was one

of the first things they had us do going into the process. We were introduced to the steps

of getting students to join, managing the class, and creating assignments. We were able

to create attachments from our Google Drive, which forced copied assignments for each

student to have their own presentations, or documents. Once we got started, it was very

easy to navigate. Even though people were hesitant to get started.

Lanie described the implementation process used for implementing Google Classroom:

> The instructor started by going through everything that's available with the Google Suite
>
> and going through the basics of the Classroom. The teachers were shown a sample
>
> classroom, how it was set up, and how to post assignments. Teachers were then given
>
> time to test things out on their own in their classroom setting. They were able to practice
>
> making their own assignments and were able to move around the website. An additional
>
> professional development session was held when there were updates to Google
>
> Classroom. We were introduced to the new features and begin utilizing them in our
>
> classrooms if we had not already started.
>
> ***Online support.*** Participants expressed they go online to conduct additional research on

ways to integrate Google Classroom and to find a lesson idea for their own classroom.

According to Katie,

> I do a lot of Pinterest, and so it's not a specific blog, I would say. I'll find certain ideas
>
> online, and I'll kind of try those out. I mean, I feel like we've gotten support on a county
>
> level, and then if there's something that I just specifically want, or if I get a little curious,
>
> I'll just look it up on Pinterest.

Carrie discussed how she was working on her master's degree in media and library science and

that her professor utilized Google Classroom:

> I happened to be in a master's program using Google Classroom, and then, as we kind of
>
> used it more, we got more training on how the system works, and then we were trained
>
> on how we could add different things for kids to use, and different apps and things we
>
> could do.

Major Theme 3: Impact on Student Understanding

The third major theme that emerged during data analysis reflected the impact of classroom instruction on student understanding of content (see Figure 14). Major Theme 3 was developed primarily from data gathered from the Google Slides narrative documentation, supplemented by statements from the individual interviews. Understanding the experiences of the participants, as well as how they defined impacts of classroom instruction on student understanding of content, was important.
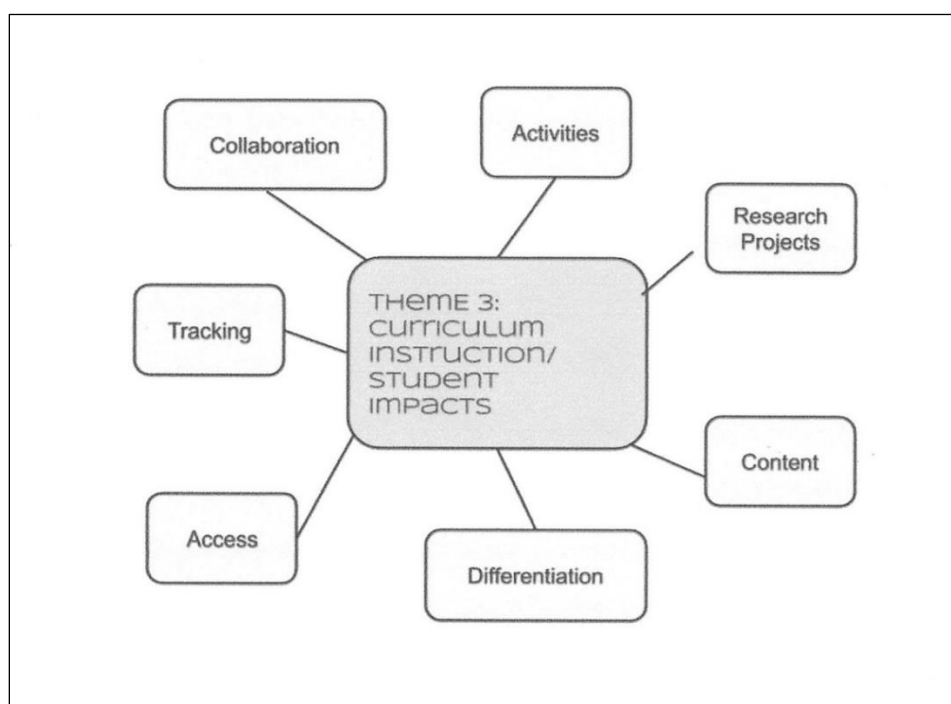
Figure 14. Major Theme 3: Impact on student understanding, indicating key phrases by participants placed in a theme cluster.

Major Theme 3: Subthemes

Four subthemes supported Major Theme 3. These subthemes, which emerged from clustered codes, included increased creativity, advanced understanding, variety in modalities both in activities and in students' products, and quicker access and feedback (see Table 7). Understanding the subthemes brings clarity to Major Theme 3.

Table 7

Theme 3: Impact on Student Understanding

Subtheme	Code
Increased creativity	Collaboration (13)
	Student choice (7)
Advanced understanding	Content (11)
	Research projects (9)
Variety in modalities of activities and student work products	Reports (9)
	Activities (8)
	Tracking (8)
	Slideshows (7)
	Google Documents (7)
Quick access and feedback	Access (7)

Increased creativity. Through integration of curriculum assignments with Google Classroom, educators offered multiple opportunities for creativity and personalization on the students' work products (see Figures 15 & 16). Students created trading cards for a biographical project, digital scrapbooks for characters, animal research slide shows, scavenger hunts, online journals, notes pages, research projects, stories, and had opportunities to visit a variety of websites through a teacher created Symbaloo. During the focus group, Don noted how students have become more independent in their learning:

> I was thinking it is, just an observation, it seems to reduce from my perspective, a need for you to pretty much give them moment-by-moment instruction because they have that path that's laid out for them. They know where to go. You really don't, you just say, "Do what you have to do," and they . . . then they click on the right places and so to me, it's expediting things and makes it more efficient.
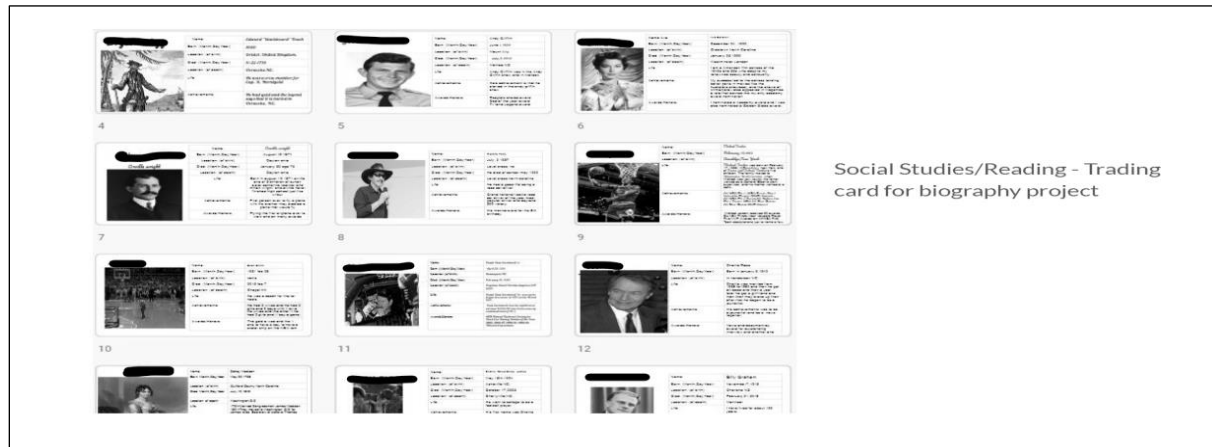
Figure 15. Carrie's Google Slides narrative documentation.
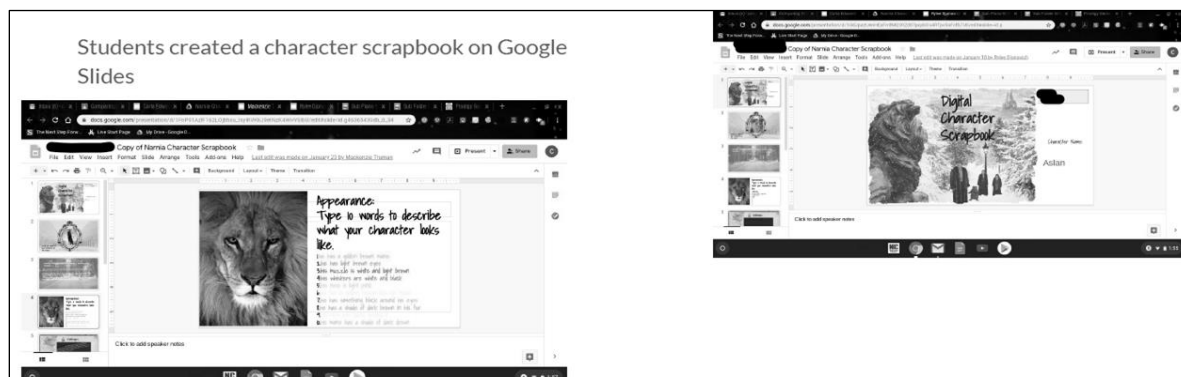

Figure 16. Cindy's Google Slides narrative documentation.

Advanced understanding. To encourage better student understanding of curriculum and content, the teachers allowed students to conduct research online and create different projects based on their understanding. A variety of resources were provided by connecting students to a plethora of websites, news articles online, and assessments to check their understanding of the content they were taught (see Figures 17–19). During the focus group, Ella shared how students had an advanced understanding:

I think if you have a routine as to how you use it, the students know how to use it.

Especially because it has an instruction portion on Google Classroom. The way we use it

for Eureka Mathematics, we get the problem set differentiation in there and students

don't have to ask you, "Which ones did you say to do again?" So, I'm like, "It's right

here." Let's do, could do, should do. You can create a material that they can actually

read, and give them assignments. You can create an absence and you can do. . . . What

else do I use? It's not . . . it's material. . . . There's a question on there too. So, it just

kind of depends on what your goal is or what the purpose is you want them to be doing as

to one of those, you would assign, and finding that more and more useful.
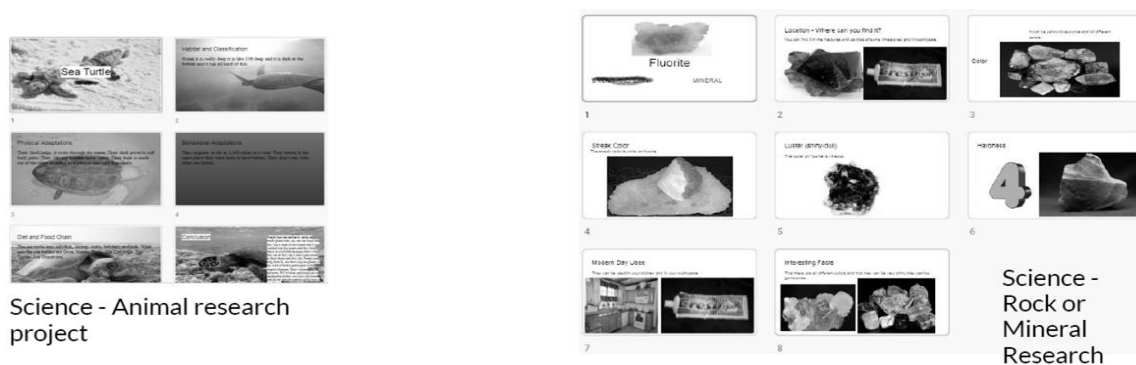
Figure 17. Carrie's Google Slides narrative documentation 2.
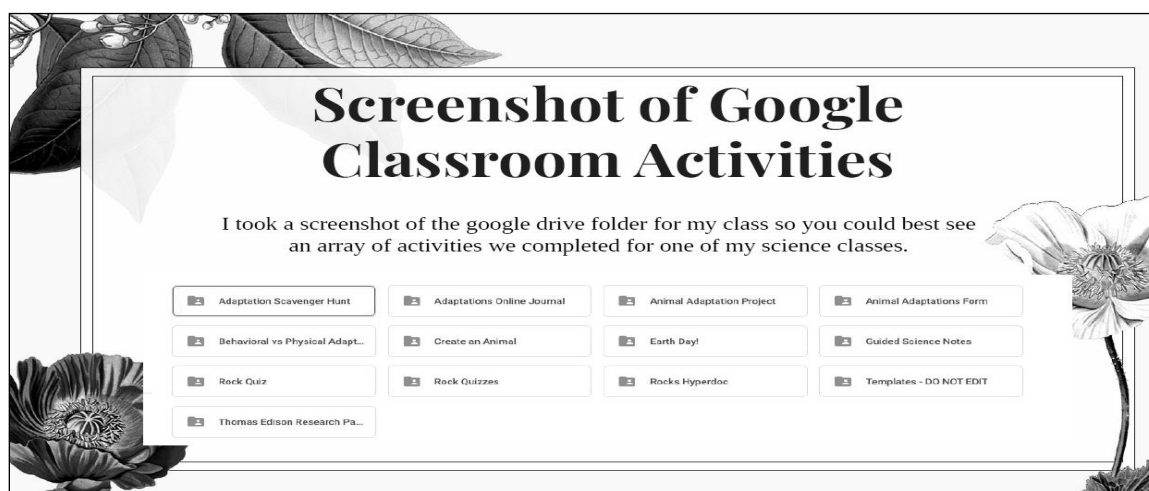
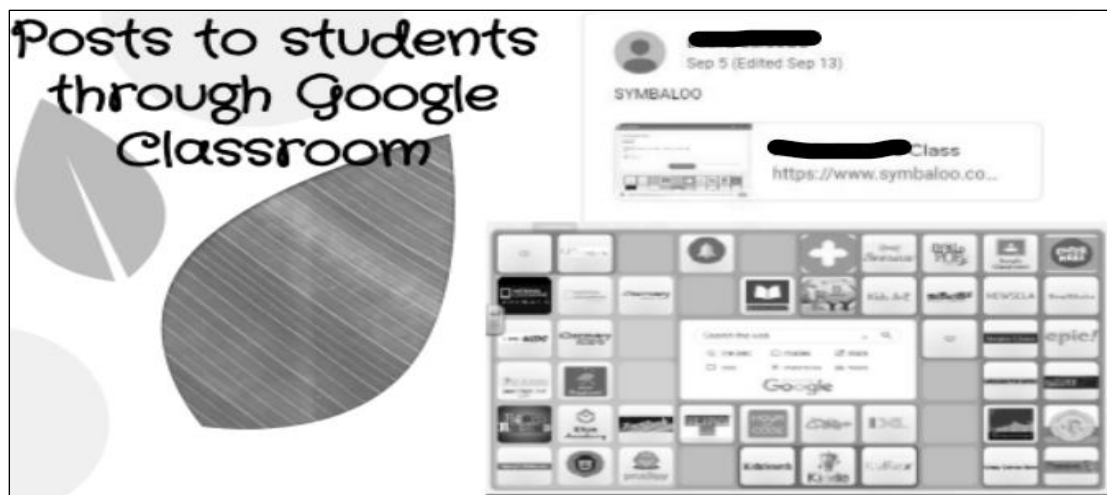*Figure 18.* Katie's Google Slides narrative documentation.

Figure 19. Lonna's Google Slides narrative documentation.

Variety in learning modalities and student work products. Teachers gave students a variety of online activities. The students used these activities to complete different curriculum projects. The learning took place through a variety of modalities, including creating 3-D images, doing research projects, building their own biomes, word processing online to answer questions, coding, accessing problem sets, and completing exit tickets online, which had been designed with Google Forms (see Figures 20–25).
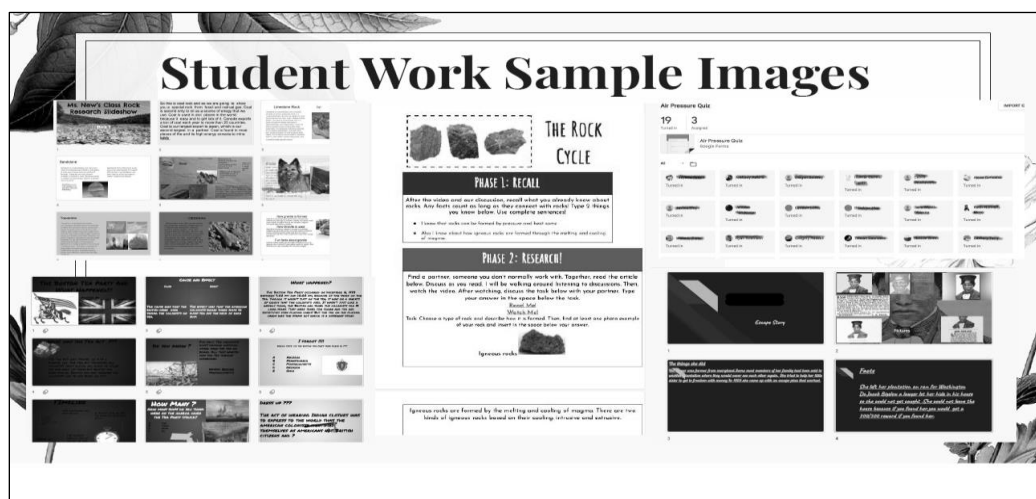

Figure 20. Katie's Google Slides narrative documentation.

Figure 21. Ella's Google Slides narrative documentation.

Figure 22. Ella's Google Slides narrative documentation 2.

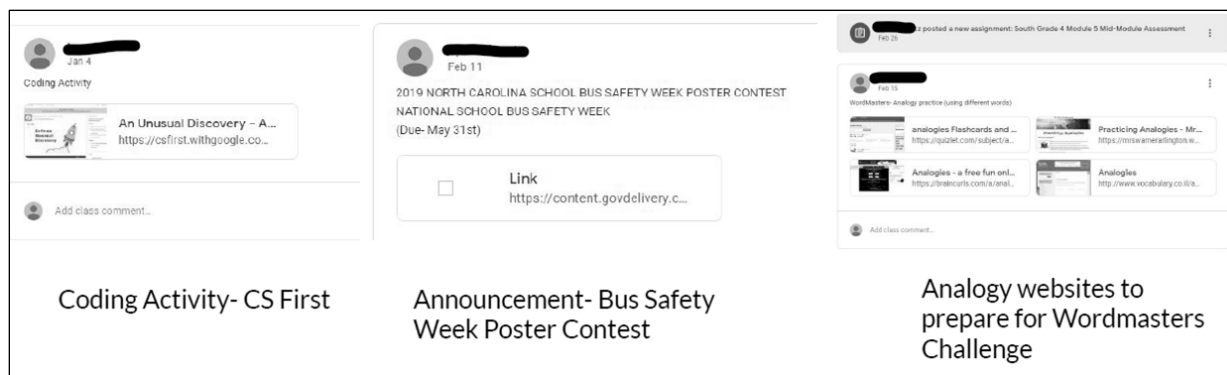*Figure 23.* Lanie's Google Slides narrative documentation.

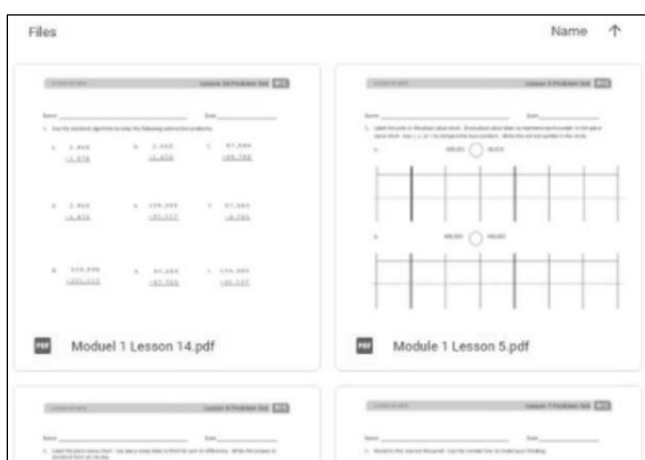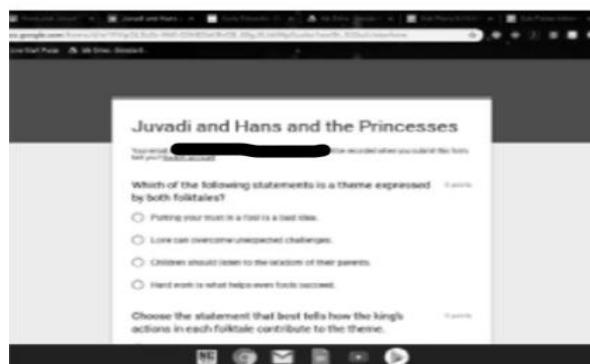*Figure 24.* Elizabeth's Google Slides narrative documentation.

Figure 25. Elizabeth's Google Slides: Exit ticket.

During the focus group discussion regarding differentiation through variety with

assignments, Don shared the following:

I use Flocabulary. I do a lot of differentiation with Flocabulary. I have four different

groups and Google Classroom allows me to assign them as a group. They only get the

assignments for their group and they know that part of that process is to collaborate on

the activities that are available for them to do through that.

Don's experiences allowed him to differentiate with the curriculum and develop multiple

modalities for students to produce their work. During the focus group, Ella shared about her

experiences:

Well, it definitely saves a lot of paper because that Flocabulary takes a lot of paper, I

would say. I've had students work on Google Classroom assignments and Google Slides

together and certain students are responsible for certain parts and then they are supposed

to check over for each other to make sure that everybody did what they were supposed to

do. Not like a contract, but kind of like a contract. They're collaborating, they're

working together, but they're not typing over each other either. But they also have access

to it. So, it's more kind of like a jigsaw. That's how I've used it. Because I know some

students can be very territorial.

When having a discussion about other experiences with Google Classroom student

impacts, Mary stated,

I like to share escape rooms on Google Classroom and I like how the kids can collaborate

and they can be working on an escape room, but yet on different Chromebooks, and the

same with projects. I like how they can be doing a project and sometimes you have kids

on the same team who really can't sit together but they can work together, but they can't

sit together because it just doesn't work for them. I like how they can be across the room

from each other, but working on the same thing, and the outcome is still the same without

maybe the quarreling.

During the focus group, Carrie also shared:

> You can give the kids the same assignment on paper, on the computer and they're just
> more into it, just were involved. It just seems more fun. It just keeps their attention more
> as far as like when they're working together, they can maybe stay focused more and helps
> to reel them in.

Giving the students' experiences as exposure to a variety of resources increases their understanding. The activities included websites, drag-and-drop activities, videos, presentations, reading passages, math problems online, and assessments. Through these experiences, students learn collaboration, how to work independently, and how to present their work.

     Quick access and feedback. The experience with the single sign-on with Google Classroom has made utilizing Google Classroom much easier for teachers and students (see Figure 26). During the focus group, Don discussed how many programs and websites now connect with ease:

> We organize the kids with their classroom to go there to one single site, which organizes
> it so that they don't have to go to a bunch of different places. There're so many other
> resources online that you can link through Classroom that… to me that's the most
> valuable part of it. Once the students get a lot of these programs, they log in with the
> Google sign on and it's, it is somewhat automatic.
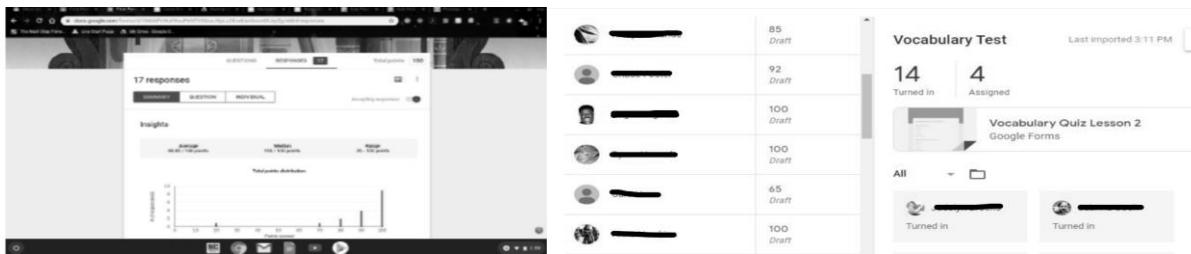
Figure 26. Cindy's Google Slides narrative documentation.

When teachers have recognized which programs are user-friendly, they begin to increase the number of programs they use and increase their resources. During the focus group, Lanie pointed out, "With my own Google Classroom, it's nice to have everything in one place. Students can go there to get on Readworks, and Edulastic. They don't have to go to a bunch of different places."

When tracking students' progress and giving feedback on their work, teachers have opportunities through Google Classroom to view the students' work in the moment. During the focus group, Ella explained, "Google Classroom shows what students are doing and amount of participation. I feel like it gives you a good opportunity see their progress. You can also communicate with them through the comments and I think that helps them too."

Major Theme 4: Attitudes about Technology Integration

The fourth major theme that emerged during data analysis reflected the participants' attitudes about implementing technology (see Figure 27). Major Theme 4 identified the teachers' perceptions of the experience of using Google Classroom and revealed their attitudes toward technology integration, specifically Google Classroom. The theme was based upon significant statements each participant expressed in their interviews and in the focus group.
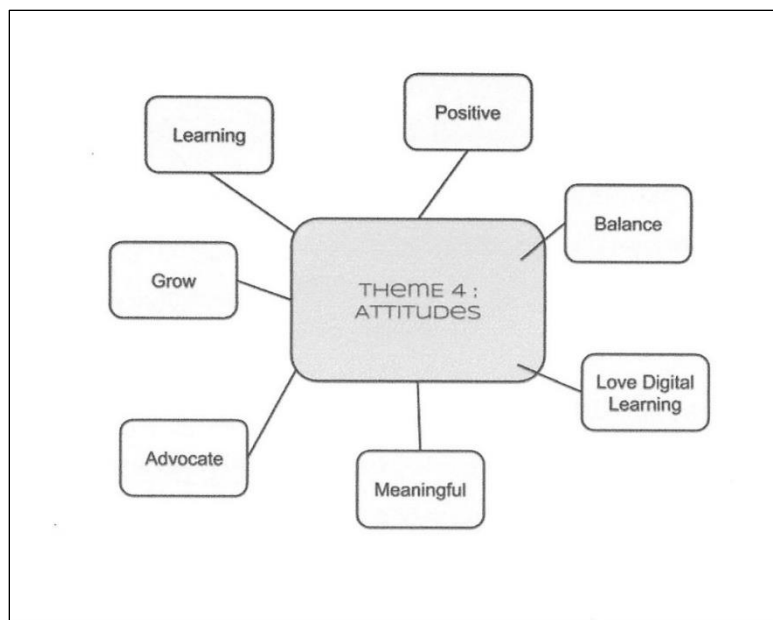
Figure 27. Major Theme 4: Attitudes about technology integration, indicating key phrases by participants placed in a theme cluster.

Most participants believed using Google Classroom was a positive experience for them and their students. For example, Carrie, Elizabeth, Ella, and Lanie noted they had positive attitudes and shared similar thoughts about the implementation of technology integration in their classrooms. These participants explained technology integration has to consist of a balance between utilizing devices and programs while also using paper-and-pencil activities in the classroom. Elizabeth explained,

Technology helps because it does motivate students and it's interesting to them to do activities on their Chromebooks. Students get excited about learning when they use technology. Students need interaction with people too. They need relationship building and they need other things as well. But I think as long as you have a good balance and you use it in the right ways, it can be very effective.

Lanie stated,

Digital learning is good for the kids, but they need a mixture of the digital and non-digital

learning, just to have a balance and it's just not all technology but. . . . It's good, but not too much of a good thing.

According to Cindy, digital learning was very useful and functions in a useful way. She expressed that she was looking forward to learning more about the updates within Google Classroom. Understanding the experiences of the participants as well as how they defined attitudes about technology integration is important.

Major Theme 4: Subthemes

Four subthemes supported the Major Theme 4: beliefs about technology integration, technology integrations benefits, technology integration hinderances, and positive attitudes about Google Classroom (see Table 8).

Table 8

Theme 4: Attitudes About Technology Integration

Theme 4: Attitudes about technology integration	
Subtheme	Code
Beliefs about technology integration	Positive mindset (12)
	Balance (11)
Technology integration benefits	Love digital learning (10)
Technology integration hinderances	Training difficulty with turnover (8)
	Resistance (3)
Positive attitudes about Google Classroom	Growth (9)
	Advocate (8)
	Organization (8)

Beliefs about technology integration. When integrating digital learning and technology activities in the classroom, the participants expressed the need for balance between technology activities and the paper-and-pencil activities. Cindy shared, "If used the correct way at school

you can really bring out a child's creativity." Don stated, "You can save time, you can save paper, and you can save money by using the technology. It can be very beneficial and effective for elementary school kids using it on their end."

Several experiences participants described included spending time teaching basic computer skills, relying too heavily on the technology for student focus; and technology can be used for other motives than learning. According to Don,

I think it really handicaps us in a classroom in 2019 to not to have access to it or the student, access to it. I've found that it's almost to the point, there's so many things out there and so many things to do. You can't do it all. You can almost fall into the trap of relying too heavily on it and forget where you are in the curriculum part of things. And that there's a delicate balance between using it for the academics and the curriculum, versus using it just to teach them the technology and continue to use technology. And what I discovered, and being where I was before . . . I went from fifth graders taking 20 to 30 minutes just to get to a particular site to work. The whole thing of just cutting the computers on, logging on, all of that and different things that you had to do to basically navigate the program. It was amazing. It's amazing the progress that the students have made now that I'm in fourth [grade] and seeing how the technology. . . . The kids come prepared. And that's the way I've always wanted to be. I wanted to have my kids prepared for the next step in. . . . I wanted them prepared for the academics and the curriculum and the teacher not have to worry about them operating the technology. And I think I've been very successful with that. My students teach other students. And it's not of critical importance, but very. . . . I rate it really, really highly in my classroom.

Technology integration benefits. Participants shared their technology experiences

which reflected their attitudes. For example, Katie shared the following:

> I love digital learning. I try to incorporate their assignments. They have Chromebooks and are a one-to-one school so, we have Chromebooks for every student, and it's just crazy to see how much they can do with that. I like to try to use it as a tool to help them continue to motivate themselves. We still do paper, pencil in my classroom, but I do like to give them, especially research projects, or like extra credit, stuff like that on their Chromebooks to kind of give them an excuse to both work on their computer skills, and to kind of dive into deeper topics, and learn more about whatever it is they're interested in. I try to tie it into the subjects that probably aren't as much fun for them. They love finding math sites for it, just little interactive things they can do, competitions and stuff like that. It gets them more excited about it. So, anytime that you can do that, or tie in a food, or something like that, they love it. I try to tie that as much as possible in meaningful ways.

In an effort to continue learning themselves and motivating students to become globally competitive, educators have created multiple modalities for students to participate. Their positive attitudes and willingness to assist with content integration has stemmed from their experiences. Ella stated,

> I want them to be digitally educated because they need to know how [to] utilize technology. The way society is moving, everything is going to be instant and collaborative. The one thing I really do like about the Google Suite, especially slides and docs, they are collaborative.

Katie also shared,

> If you have a teacher who really knows how to use technology, you can have these kids

doing research, and learning, like just constantly learning, and learning, and even

motivating themselves to learn, and ask more questions, and kind of dig deeper into

topics. There are programs as well that do motivate them to do better. There are some

programs where they are challenging themselves. They're setting goals for themselves,

and those kinds of programs I think really help them, because the technology is

interesting to them. If it's something they already know about, it kind of gives them

some ownership, because of something they usually know a little bit more than us about.

I think that in that capacity you can really help push them further and help them grow.

When teachers are motivated to prepare activities to motivate students and allow them to

research about different topics they have not learned before, the activities are beneficial for both

students and educators. As Mary explained,

I think that technology helps because we have a research tool, and if used correctly, it just

opens up doors for things that they need to know. Things that we don't even know

ourselves because virtual field trips, the list, it could just go on and on. I use technology

daily. I believe in using technology daily. I also believe that children need the interface

with people because they need to know how to communicate with people.

Technology integration hinderances. Although the participants in this study had

positive attitudes, they shared some of their experiences where they had hinderances with

technology integration. Such hindrances can cause the learning and integration to be difficult in

some situations. Participants shared their experiences and their attitudes about these situations.

Elizabeth and Katie both expressed that digital learning should be integrated in a mindful way.

They focused on the idea that students and teachers should not become dependent on the

technology, and how it should be used as a tool. Elizabeth shared:

I think sometimes technology can hinder because it can become the focus for students. I know having Chromebooks in the classroom can be a challenge because students want to be on it constantly, and it's hard for them to put it away and not think about it. They want everything that they do to involve the technology. So that can be one challenge. And then sometimes they can use it for inappropriate things and look up stuff they shouldn't be looking up.

In the classroom it can be difficult to find a balance between digital technology integration and traditional assignments on paper. Teachers spend time trying to integrate interesting activities into the curriculum, but they also expressed they want students to comprehend the content being taught. Ella shared many times back tracking is good to have students complete activities on paper in order grasp the content they may not understand online:

They are always on devices, always looking at screens, and they are always stimulated by something, which can have a negative effect because if they don't have that stimulation, then they're always looking for it. I think it's, sometimes, especially with my class, if they become too dependent on the digital technology and they have to back-track to put something, paper, pencil, then they kind of freak out a little bit. But they're very uncomfortable with that if they're used to technology all the time. We talk about things, like, oh, we made a mistake, we need to be flexible, or this didn't work, we have to be flexible. I don't want them to become too reliable, or reliant, I should say, on technology.

Mary and Kalie expressed how students were not mature enough to do the right thing when utilizing technology and how constantly using technology hinders students' communication because the students are not able to connect with each other in a social aspect.

Mary shared, "If you're not monitoring them, some of these students just do not have the maturity yet to do the right thing. They don't necessarily make the right choices online." Katie stated, "Sometimes technology doesn't allow them to critically think for themselves and causes students to lack communication skills. I incorporate technology, but I like to do face-to-face and activities that also engage my students, socially connecting with each other.

Positive attitudes about integrating Google Classroom. All of the participants who were interviewed during this study had a positive attitude about integrating Google Classroom. Participants expressed how technology made their teaching careers much easier, including with organization management, ease of use, connection with Google Drive, and with other Google applications. Katie shared her attitude about Google Classroom:

> I have a very positive attitude towards it. I really enjoy using Google Classroom. I am a big advocate for it. I always tell people that it's probably my favorite tool that we've used so far is Google Classroom. Just because the students know how to use it. It's very easy for them to get into. If I have a student that comes in late year, they can join very easily, and see everything we've been doing up to that point. It's only gotten better with all the improvements that they've come out with over the 2 years that I've really been using it a lot. It's only gotten better. I think more, and more websites, and apps, and stuff like that are becoming easily paired with Google Classroom. It's become a lot easier to use it to transfer grades, or give feedback, or do all this stuff, and to work with other websites, and everything. So, I'm excited to see where it goes from here, but it's definitely something I want to keep using, and we'll continue to see how I can use it to help motivate my students.

Ella also shared she had very positive experiences with Google Classroom:

Definitely a positive one. There are certain sites where if students are linked to Google

Classroom, or excuse me, not linked, but synced with Google Classroom, it automatically

gives the student access to those and whatever assignments you may need to differentiate

for them. I've been very pleased with that, even if I'm not using particularly Classroom,

but I'm syncing it with Classroom. That has been wonderful for all of our online

subscriptions like Newsela, and we use Common Lit a lot for our informational and then

fictional texts. We are going to save so much paper by putting the problem sets from

Eureka on math. That's just a time situation, but once you get in the groove, I'm sure

that will be very helpful. I like being able to post something and then the kids, if they

want to see it again, they can have it up. We did our goal-setting, and I shared the

document with them so that whenever they needed to see the incentives, it didn't have to

be posted on the board. It could be on their page and they could look at it when they

wanted. It gives them a little bit of freedom as well. So overall, I've been very pleased.

I'm very grateful that we have that in the digital age.

Both Elizabeth and Cindy said they liked Google classroom because it was helpful and

useful. They both used Google Classroom for review and for assessment. Cindy shared,

"Attitude: I love it"; and Elizabeth stated, "I think it's been very helpful, especially teaching

older students. It is an easy way to get information to them, keep them interested and engaged in

projects."

Within the focus group, several of the participants expressed their attitudes about their

experiences with Google Classroom. Don and Mary focused on how Google Classroom was a

way to connect everything together. Don stated, "I think it's a great way to tie everything in,

from Slides to Docs to programs that we used too, it's just a great clearing how to keep things going in the right direction for the kids and us." Carrie had thought-provoking questions:

> If we didn't have Google Classroom and integrating technology, how would we push
> assignments? How would we organize it? How would the students navigate it? I'm
> really glad we have it and that we've had the training on it.

Each participant in the focus group had very positive feedback and willingly encouraged others to utilize the LMS Google Classroom.

Central Research Question

The four themes developed from the data collected for the study revealed how North Carolina elementary teachers perceived the overall experiences with Google Classroom. I have used all the themes developed during my investigation to answer the research questions of the study. The central question was as follows: What are North Carolina elementary teachers' perceptions of the ways in which Google Classroom technology integration impacts classroom instruction?

Major Theme 1 revealed the implementation process for teachers. The participants shared their perceptions regarding implementation, including initial training, classroom layout, flexible seating, visible screens, and collaborative grouping. Don shared, "As a teacher-leader, I received the initial implementation training outside of the district and then I trained the teachers in my own building on the logistics and processes." Mary explained,

> When we first rolled out Google, there were several people who went to a major training.
> Then we came back to our schools, we rolled it out to all of the teachers. A small group
> of us went to Raleigh and we learned all about Google, all about how to introduce it to
> the teachers and then how to use it. Then we brought it back to the school. We had big

sessions, professional development sessions with the teachers, where we taught them about Google Suite. Then with their students, at the beginning, we just had to go slow and do one-on-one or not really one-on-one, but your whole classroom. It was slow because we had to go step-by-step. However, so many of our kids are already savvy. Some of them already knew what they were doing and they could just go on.

Data revealed teachers appreciated the implementation process and support they received from their colleagues. Teachers utilized a variety of layouts based on their instruction style to develop a classroom more conducive to technology integration, specifically when utilizing Google Classroom. Teachers also integrated flexible seating into their classrooms to allow students to move around and stay active while utilizing the technology. To implement Google Classroom, teachers also made sure students' screens were in an area where they could be seen and had collaborative groups in order to allow for a team effort on assignments.

Major Theme 2 was central to understanding teachers' perceptions of and experiences with Google Classroom. The training and support were vital experiences in which teachers participated. The teachers had training and support from multiple means including the ITF, colleagues, teacher-leaders, PD, and online support. Lonna shared, "The ITF gave us a little tour of Google Classroom and then we worked with our ITF to set up our own Google Classroom." Kalie described,

> The ITF was a big part of our support system. We had our weekly sessions where she came in and talked to us about how we can incorporate Google Classroom and technology into our own classrooms, then guided us through. Our mentor-teachers also provided workshops to answer any questions that we had.

The data revealed teachers felt more comfortable utilizing Google Classroom and technology in

their own classrooms due to the training and support they were provided. The teachers could rely on the support system developed when they needed additional direction or if they had questions. The support system included the ITF, colleague support, district leaders, and teacher-leaders within the school building. This support allowed them to feel at ease rather than nervous about the new technology they were implementing.

Major Theme 3 revealed multiple impacts of teachers' classroom instruction on student understanding through the implementation of Google Classroom. Teachers shared their experiences with students and how their classroom instruction was changed. The process increased creativity, allowed for advanced understanding, created opportunities for variety in modalities and in students' work samples, and allowed quicker access to materials and feedback. Elizabeth shared the impact on her instruction during her interview:

So, this year I use Google Classroom daily, you know, daily as far as assignments, like their math assignment for the day was always on Google Classroom. Their problem set was uploaded. Any other assignments that are quizzes, a lot of quizzes we did on there as well, and they really liked that. We also used Google Classroom to do a lot of projects throughout the year, like on the North Carolina regions, digital character scrapbook on *The Lion, Witch, and Wardrobe*. We used it to allow the students to be creative and it had a great impact on their engagement levels.

Teachers shared through Google Slides narrative documentation their experiences with classroom instruction. They incorporated multiple work samples and assignments as part of the data collection. The data revealed teachers were able to incorporate multiple types of assignments, keep students organized, and assess students which, provided quick feedback for students and enabled teachers to adjust their classroom instruction accordingly.

Major Theme 4 revealed the teachers have a positive attitude toward Google Classroom and technology integration. Even though they had hesitation about transitioning over to a new method of teaching, the participants expressed the positive impacts the technology had on their classrooms. Participants shared their beliefs about technology integration, expressing the need for a "balance, happy medium, and a level of monitoring," as Don pointed out. Data showed participants were eager to explore all of the materials they were given and to be lifelong learners in relation to technology integration and Google Classroom. Kalie shared, "I have a very positive attitude. I really like Google and I really want to learn more."

Research Subquestion 1

SQ1 was as follows: What are North Carolina elementary teachers' perceptions of the ways Google Classroom technology integration impacts student understanding of content? North Carolina elementary teachers' perceptions of the ways Google Classroom technology integration impacts student understanding of content include increased creativity, advanced understanding, ability to involve students in a variety of modalities, produce a variety of student work samples and give quicker access and feedback. For example, Don shared the following:

> At times, with other types of instruction you pretty much give them moment-by-moment
>
> instruction because they have that path that's laid out for them. With Google Classroom,
>
> they know where to go. You just say, "Do what you have to do," and they . . . then they
>
> click on the right places and so to me, it's expediting things and makes it more efficient.

The participants showed their perceptions of technology integration impacts by presenting a variety of examples of student creations, assignments given, and activities they had assigned students. Ella shared,

> I think if you have a routine as to how you use it, the students know how to use it. And

especially because it has an instruction portion is there as well. Especially for the way

we use it for Eureka Math, we get the problem set differentiation in there and they don't

have to ask you, "Which ones did you say to do again?" I'm like, "It's right here." Let's

do, could do, should do. And the class codes when they're joining are always on the

screen. I also like how you can create a material that they can actually read. It just kind

of depends on what your goal is or what the purpose is you want them to be doing as to

one of those, you would assign, and finding that more and more useful.

The shared experiences in Major Themes 1 and 3 showed that teachers worked to create

classroom settings appropriate to integrate Google Classroom. They shared their experiences of

setting up the classroom that allowed for technology integration, flexible seating, visible screens,

and collaborative grouping. Students increased their knowledge as the teachers focused on

multiple aspects of classroom environment and developed lessons directed at digital learning

integration.

Research Subquestion 2

SQ2 was as follows: What are North Carolina elementary teachers' perceptions of the

effectiveness of professional development (PD) provided to support their ongoing use of Google

Classroom? Major Theme 3 showed North Carolina Grades 3 through 5 teachers who

participated in this study were provided tremendous support and training from multiple sources,

including the ITF, colleague support, teacher-leaders, PD opportunities, and online support. As

Penny shared,

The ITF was very helpful through training and support; whenever I'm clueless, I get my

colleagues to help me. The curriculum coach would help some too. But everybody had

their strengths, and that way you could go to the different teachers or anybody around,

and say, "Okay, can you show me how to do this?" Some knew really well how to

narrate the slides and assist, which helped when I was creating activities for my

classroom.

Major Theme 3 showed participants felt they had multiple means of support within their

own school, at the district level, and outside of the district. Lanie shared,

I missed the training for Google Classroom, but during an additional professional

development workshop, I was able to walk through Google Suite and the basics of the

Classroom. I was shown a sample of an actual Google Classroom, how it's set up and

how you can post assignments and then I was given time to test it out on my own and

practice making assignments while navigating the website. I think they do a good job of

introducing that to the new teachers and the new teachers pick up on it quicker anyway

than the other ones.

Lanie's statement indicated even when the teacher missed the training, her colleagues and

support staff were willing to work with her to help her get caught up on the content she missed.

Providing a strong network and support system has proven in Major Theme 3 to be an important

factor in the success rate of the implementation of Google Classroom in this particular district.

Research Subquestion 3

SQ3 was as follows: What are North Carolina elementary teachers' perceptions of the

ways their attitudes impact technology integration using Google Classroom? Major Theme 4

indicated a strong connection between participants' attitudes about technology integration and

their experiences with the implementation of a LMS such as Google Classroom. As Sue shared,

"I think that it's been pretty positive using Google Classroom. I like using it." Penny stated,

I'm loving it so far. It's made not only my life so much easier; it's made the kid's lives

easier. And even in the money aspect, you think how much we're saving not having to

use everything, paper, pencil. And the students become a lot more independent when you

put them on a Chromebook. And I didn't think that was going to be the case. But once

they learn how to use it, they take ownership of what they're doing. And I enjoy it just

because of the differentiation that you can put in, just all the extra stuff they could do that

you can't do in a classroom, usually.

Overall, the participants shared they were willing to try new technology in their classrooms and

they felt prepared due to the implementation, training, and support they were offered.

Summary

The purpose of this transcendental phenomenological study was to understand North

Carolina elementary school teachers' perceptions of Google Classroom technology integration as

a lived experience. In examining the lived experiences of North Carolina elementary school

teachers with Google Classroom technology integration, I discovered four major themes from the

data. The four major themes included (a)implementation of technology, (b) training and support,

(c) impacts in student understanding and (d) attitudes about technology integration. The teacher

participants shared their experiences with implementation. The thorough process of training in a

train-the-trainer mode was beneficial and provided opportunities for leadership skills to develop

with technology teacher-leaders at the school level. The classroom layout, flexible seating,

adjusting the classroom for students' screens to become visible, and creating an environment

conducive for collaborative grouping were some of the main priorities throughout the

implementation process. Allowing teachers to receive their devices first and explore the LMS

Google Classroom created confidence and allowed time for development of activities through the

use of the GSFE.

Training and support were offered in a variety of modalities after the initial implementation process occurred. The teacher participants shared a multitude of support experiences including assistance from the ITF, colleague support, teacher-leaders' guidance, professional development opportunities, and online support resources. Teachers agreed that the support system allowed them to advance in their skills and made them feel comfortable as they implemented the new LMS Google Classroom.

Participants shared their perceptions of the impacts of classroom instruction on student understanding. Through Google Slides narrative documentation, the participants showed that students had increased creativity levels, an advanced understanding, a variety of work products produced, and had quick access to assignments. Teachers gave their students a variety of assignments submitted through Google Classroom and gave appropriate feedback to help students increase their work quality.

The participants shared similar attitudes about technology integration. They shared that even though they were initially hesitant about the integration of Google Classroom, they felt supported and willing to learn. The participants explained that they had very positive experiences and were excited to continue to expand their knowledge base.

Participants' attitudes reflected a willingness to learn and try out new strategies in their classroom. Finding a balance between technology integration in the classroom was a statement repeated multiple times throughout the data collection phase. The participants expressed that they loved Google Classroom and it made their lives much easier. They could store their assignments in Google Drive, create activities in Google Classroom, or even distribute materials through the LMS.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. In Chapter Five, a summary of the findings of the study are further discussed along with the theoretical framework and empirical findings in the existing body of literature. Implications for educators, school leadership, technology department leaders, and higher education institutions are presented. Furthermore, the chapter concludes with delimitations and limitations of the study, recommendations for future research, and a final summary of the research.

Summary of Findings

The study took place at the Zinnia County School District located in the Piedmont Triad Region of North Carolina. Participants included 12 elementary school teachers in North Carolina who had experienced integrating Google Classroom into their daily routines. Participants shared their experiences through individual interviews, Google Slides narrative documentation, and a focus group. The three sources of data provided a plethora of information about the participants' experiences with Google Classroom. Individual interviews and the focus group were recorded, transcribed, coded, and analyzed. I compiled a list of repeated words and phrases. I used images and text from the Google Slides narratives as part of the coding. The teachers' lived experiences included extensive training and support throughout the implementation process, consistent engagement from students in the learning process, a variety of professional development opportunities, and positive attitudes related to the integration of Google Classroom. The four major themes included (a) implementation of technology, (b) training and support for teachers, (c) impact on student understanding, and (d) attitudes about technology integration.

The central research question guiding the study was, What are North Carolina elementary teachers' perceptions of the ways in which Google Classroom technology integration impacts classroom instruction? Major Theme 3, impacts of teachers' classroom instruction on student understanding, was derived from this central research question. I developed this question to comprehend teachers' perceptions of Google Classroom and to develop an understanding of any patterns and themes revealing the essence of teacher perceptions of using the application. The goal of creating this question was to help me understand elementary school teachers' experiences with Google Classroom to teach curriculum in North Carolina (Weaver et al., 2008). The data showed how the participants utilized Google Classroom as a LMS to organize, manage, and teach content areas. Many participants expressed the technology was a life-changing experience for education, and the fact that they did not have to keep recreating resources allowed for more time to focus on expanding what the content that they already had. I utilized three sub-questions (SQ) to expand on the central research questions in the study.

The first sub-question was: What are North Carolina elementary teachers' perceptions of the ways Google Classroom technology integration impacts student understanding of content? Major Theme 3, impacts of teachers' classroom instruction on student understanding, was developed from participants' responses to SQ1. This question addressed how teachers have implemented new technology in the form of Google Classroom to teach the curriculum and enhance student learning. With the question I investigated the variety of ways teachers have used the LMS to enable students to understand content. The feedback from this question provided valuable information for other educators to utilize in their own practice. Agyei and Keengwe (2014) suggested utilizing the TPACK theoretical model would allow teachers to develop lessons that increase student engagement and enhance learner-centeredness. Major Theme 3 showed that

participants shared a variety of resources and activities they utilized to make impacts on student

learning including, Google Slides, Google Documents, videos, and many other resources. The

participants provided pictures and typed paragraphs in the Google Slides narrative

documentation as a part of the data collection process. The documentation showed a variety of

standards-based activities that allowed for creativity and student choice increasing student

engagement.

The second sub-question asked: What are North Carolina elementary teachers'

perceptions of the effectiveness of professional development (PD) provided to support their

ongoing use of Google Classroom? Major Themes 1 and 2 emerged from the participants'

responses to SQ2. Major Theme 1 was the implementation of technology and Major Theme 2

was training and support for teachers. Major Theme 1 served to answer SQ2 by highlighting the

teachers' perceptions of the effectiveness of the implementation process. The participants shared

their experiences about receiving initial training, learning the applications, and discovering how

to create content. Agyei and Keengwe (2014) suggested teachers who are adequately prepared

for integrating technology are likely to lead in technology reform. Within Major Theme 2,

participants identified the best training methods and types of support related to digital learning in

the classroom. Through the data collected relating to Major Theme 2, every participant indicated

that they received help from multiple sources, including the ITF, PD in the district, online

support, colleague support, and through teacher-leader support. Participants shared that the

effectiveness of the support allowed them to learn and feel comfortable with the new materials

they were shown. For example, Don indicated he felt that he had adequate support through the

implementation process and throughout the last 2 years in the district. Supporting educators is

accomplished by school systems providing additional PD, guiding them through the instructional

process, and reassuring them that they are on the right track. Major Themes 1 and 2 highlighted an understanding of exactly how the teachers were supported and what was done to support them to promote improvements for future implementation of Google Classroom.

The third sub-question asked: What are North Carolina elementary teachers' perceptions of the ways their attitudes impact technology integration using Google Classroom? Interview questions related to the focus of the SQ3 provided an opportunity for teachers to describe their attitudes based on their experiences with Google Classroom. Major Theme 4, attitudes about technology integration, emerged from the participants' responses to SQ3. Previous research suggested a correlation between educators' attitudes about technology integration and successful implementation (Tondeur et al., 2017). Positive teacher attitudes toward computers are widely recognized as a necessary condition for effective use of IT in the classroom (Balta & Duran, 2015). My goal for developing SQ3 was to gain insight into and to understand teachers' points of view about technology integration. The question was answered when the participants in this study shared their experiences, which were extremely positive and they planned to continue utilizing Google Classroom as a way to implement technology into their classrooms. Even though some hinderances caused frustration at times, the participants expressed their excitement to continue learning and sharing their digital content with the students in their classrooms.

Discussion

I conducted this study to gain an understanding about the lived experiences of North Carolina public school teachers using Google Classroom to impact student learning. During the study, I discovered four main themes: (a) implementation of technology, (b) training and support for teachers, (c) impact on student understanding, and (d) attitudes about technology integration. In the following section, I present how this study and themes relate to the theoretical and empirical literature and present additional information regarding Google Classroom integration for teachers.

Theoretical Literature

The study consistently supported the discovery learning theory, which established that learning is cognitive growth through interaction with the environment (Alfieri et al., 2011). Discovery learning theory is an inquiry-based, constructivist learning theory that is demonstrated in problem-solving situations when the learner draws on his or her own experience and existing knowledge to discover facts, relationships, and new truths to be learned (Mayer, 2004). The 12 study participants confirmed they utilized the constructivist approach for technology integration, because they were exposed to new content, and they drew from their own experiences and existing knowledge to discover facts, relationships, and new truths. The participants were encouraged by the ITF and support personnel to actively engage in the training which, in turn, taught them to be autonomous, responsible, and independent through their creative problem-solving. The participants expressed willingness to try things on their own and to discover how to connect the content. If they could not figure something out, they reached out for support. The participants even referenced the critics' point of view of cognitive overload for individuals who were trying to problem-solve. They shared that they had experienced times when others would become overwhelmed because they did not have experience with the technology they were being trained on, and they thought it was too much to take in at one time.

Empirical Literature

Most current research focused on digital learning has targeted middle school and high school teacher experiences. There was little research at the elementary level focusing on teachers' experiences with integrating technology while using applications like Google Classroom, along with more traditional curriculum and instructional strategies. This present study was conducted to address the gap in the literature related to this problem. In this study, I examined North Carolina elementary school teacher perceptions of Google Classroom technology integration as a lived

experience. The following section is focused on the relationship between the empirical literature reviewed and information revealed in the data analysis of this study.

Previous research emphasized the absence of innovators and early adopters negatively impacts the likelihood teachers will adopt technology (Aldunate & Nussbaum, 2013). Teachers' beliefs, attitudes, and training greatly impact the integration of new technologies in the classroom (Aldunate & Nussbaum, 2013). By teachers being given a period of time in which they could learn the devices, programs, applications, and digital content, they felt more comfortable with the integration process. The teacher-leaders and administrators received their devices several months before the implementation of training and before the implementation process. In the interviews, participants described the implementation process and the steps taken in order to implement technology in the classroom along with Google Classroom. They discussed the initial training for teacher leaders at the Friday Institute and how the process was then implemented at the school level. The teacher leaders then hosted professional development workshops to facilitate the technology integration process and to help teachers gain ideas and become aware of how to utilize Google Suite for Education (GSFE) in the academic setting. This information reveals the implementation process is much more successful when a detailed plan is created, teacher-leaders are trained, and professional development opportunities are provided for educators.

In previous research, Google Classroom was identified as an easy way for learners and instructors to get assignments inside and outside of school (Johns et al., 2017). Google Classroom also provided an opportunity for students to utilize technology in an online environment and a way for students to have interaction opportunities (Cummings, 2016). According to Brown and Hocutt (2015), "Google Classroom functions as an interface connected

with Google Apps for Education (GAFE); the primary functionality and interaction for students

is with GAFE itself" (p. 162). This current study extended the literature on the topic of Google

Classroom implementation. All participants in this study utilized Google Classroom an LMS

application within GSFE for 2 years or more. Through the interviews, the participants shared

how they went about the implementation process, their guidance as or from teacher-leaders, and

how a plan was developed to share the information with the other educators at the elementary

school level. As Don shared,

> "I remember going through trainings that would prepare the staff, it's really a
>
> collaborative effort between the teachers and students all the time because they'll find
>
> things and help us and we'll help them. And it's really a win-win situation. So, I think
>
> we've made a whole lot of progress as far as that goes with the training, for not only the
>
> PD that we've had for the teachers, but the implementation process in the classroom as
>
> well."

This information reveals the participants utilized the implementation process as a collaborative

effort to learn about technology integration through the LMS, Google Classroom and the GSFE.

Previous research showed engagement can be an issue if teachers do not take full

advantage of the LMS by creating activities that spark the learners' interest (Langevin, 2018).

Pedagogy can be seen as lacking because premade lessons seamlessly integrated for

understanding are not available (Langevin, 2018). In this study, participants shared they took

full advantage of becoming teacher-leaders, participating in PD opportunities, and were willing

to learn about Google Classroom. During the implementation process, teachers were encouraged

to develop ideas and lessons connected to their content and activities they could utilize in their

classrooms. Through the interviews, Google Slides narrative documentation, and in the focus

group, participants shared they had utilized the initial trainings to learn and develop content materials for their classrooms.

Previous studies indicated that teachers who were early technology adopters and committed a significant portion of their time to incorporating educational technology into their teaching were more likely to adopt new technology, regardless of its complexity (Christensen, 2002; PBS Learning Media, 2013). This research corroborates the idea teachers have a better understanding of technology integration if they are provided proper training and support. Teacher-leaders in this study were trained at North Carolina State University's William and Ida's Friday Institute for Educational Innovation. The district teacher-leaders were guided by a digital learning coach. After the initial training at the Friday Institute, the district leaders created an implementation plan. The plan incorporated multiple opportunities for teachers to learn about digital learning, design content materials, and share with others in the district. The plan provided a way for teachers to learn while committing a significant amount of their time to learning and incorporating the new technology.

Participants reported the ITF came once a week to their school. The ITF held hands-on classes to instruct the teachers on different topics and walked them through different technology processes, including setting up their Google Classroom, creating assignments within Google Classroom, and designing assignments for students to complete within their classes Google Classroom. The teacher-leaders developed plans for implementation throughout the district and lead teachers held workshops at the elementary schools. The study participants shared they received considerable support and had multiple opportunities for training. Many of the participants were also teacher-leaders in the technology implementation process. They offered training and supported the teachers throughout their building. This information reveals these

participants were involved in the training and utilized their resources for support. The study also confirmed the GSFE has allowed teachers to collaborate to create resources and organize their materials. The current research also confirmed previous research that suggested teachers can use the content repeatedly and easily to create new materials from existing ones (Hostrup, 2015). They can turn the units they teach during the year into a Google Site. Teachers can place the files, documents, and presentations on one specific site and then students can access the information. Teachers can give real-time feedback on the student's work (Hostrup, 2015).

Schuck et al. (2018) conducted a study focused on teachers' lived experiences with integrating Google Apps and Chromebooks into the Core Curriculum. The study included 13 core content teachers in Grades 4 through 8, and Schuck et al. found reoccurring themes regarding consistent wireless connectivity issues, difficulty accessing Chromebooks due to limited availability, and lack of support with inconsistent professional development. In addition, Schuck et al. recommended more studies to assess the lived experiences of teachers who took part in the implementation process of utilizing specific Google applications and the process for engaging with their students to gain a more in-depth understanding of technology integration. The findings from this current study were opposite in relation to support and PD. The PD opportunities and support were consistent throughout the implementation process and continuing forward. Participants in this study shared their experiences with training and support from multiple sources, including teacher-leaders, district leaders, online PD, the ITF, and colleague support. This study showed a large amount of support throughout the district when implementing technology within the school level and in the classrooms. Within the school district were multiple PD opportunities. During the focus group, Mary shared,

> I think it . . . the trainings allowed teachers to build confidence because not everyone has

that confidence about digital learning. And the more you go to something, the greater

your knowledge base comes basically and then you are more comfortable. And I think

once you've been to trainings like that, you become more comfortable with. . . . What's

the word I'm looking for? Admitting that you don't know everything.

Participants expressed that they felt supported and trained to integrate Google Classroom and

other technology in their own classrooms. The study showed training was hands-on and

prepared teachers for implementation in the classroom.

Research indicated many school systems utilizing the GSFE and Google Classroom had

positive impacts on student understanding. In a research study conducted by Google Inc. in

2011, Edmonton Public Schools experienced an increase in learning engagement, enhanced

collaboration among students and teachers, and students were able to have modern learning

technologies. Students' creativity was sparked and a boost occurred in their enthusiasm for

learning (Google Inc., 2011). For organization purposes, students created resources and

organized their assignments in folders. By creating new resources and keeping them organized,

students work toward a better education (Google Inc., 2011). Participants in the current study

shared how the GFSE and Google Classroom made the organization process easier. Teachers

felt Google Suite and Google Classroom were a way to get organized information to students in a

quick manner. The teachers assigned a variety of activities in which they were able to research,

create, and design content materials aligned with content standards. The students were able to

submit their work with ease and the teachers were able to give feedback quickly.

Through the Google Slides narrative documentation, a component of the data collection

in this study, participants showed examples of student assignments they have given students in

Google Classroom utilizing the Google Applications. By submitting pictures of activities and

projects teachers confirmed their utilization of Google Classroom to have students collaborate, share, and create. Previous research showed some teachers, such as Rebecca Grgurina, a sixth-grade science teacher and STEM coordinator at Kennedy Middle School in Charlotte, North Carolina, used the applications available on Chromebooks to assess students' knowledge and understanding of content (Fink, 2015). Chrome apps, such as Google Forms, Flubaroo, and Exit Tickets, are used in the classroom for assessments (Fink, 2015). These applications are necessary for teachers because they help with time management and data collection, which makes assessing student growth an effortless task. When students have mastered the basic objectives, they can move on to more challenging content while others receive supportive instruction (Fink, 2015). As teachers focus on the students' varied levels of proficiency, students are able to take part in various learning activities and for instruction to be differentiated.

As participant Katie noted, from her perspective, Google Classroom eliminates a need to give students moment-by-moment instruction because they have that path laid out for them. They know where to go and click on the right places; so, to Katie, Google Classroom was expediting things and making instruction more efficient. Mary shared that she was able to assign specific curriculum to particular students in order to differentiate the curriculum. Content modification is based on the students' skill levels allows the content to be modified very easily.

Previous research showed learning occurs in multiple ways, including student-directed and teacher-guided as well as through collaborative group work. Many blended classrooms target small groups of students, integrate technology through interactive content, and facilitate multiple types of activities at the same time (Ullman, 2014). "Blended learning lets students be active learners and drive their instruction. Teachers can get students doing what they need and what makes the most sense" (Ullman, 2014, para. 3). Lastly, blended learning allows thorough

data-driven instruction so teachers can reflect upon where they need to continually encourage

their students to progress (Ullman, 2014). Participants in this study shared they were able to

assign students engaging projects including trading card creation and coding activities through

Google Classroom. The students were able to collaborate on group projects easier. Through

small group instruction teachers were able to differentiate assignments, and share links to a

variety of resources for students to work on all at the same time. Mary shared,

> I like how they can be doing a project and sometimes you have kids on the same team
>
> who really can't sit together, but they can work together, but they can't sit together
>
> because it just doesn't work for them. And so, I like how they can be across the room
>
> from each other, but working on the same thing and the outcome is still the same without
>
> maybe the quarreling.

In a recent meta-analysis student performance was shown to have increased when using

blended and online learning, when compared student performance with face-to-face instruction

(Bernard et al., 2009; Means et al., 2013). Participants shared they incorporated blended

learning in their classrooms by providing students with assignments online through the use of

Google Classroom. Don utilized an online assessment after each mathematics unit to assess the

students online: "I allow students to take online assessments to prepare them for their EOG tests.

The students also read passages online as a way to practice for their future assessments.

In the focus group Don shared that students were able to develop their own digital

learning leadership skills. One of the major impacts is the teachers teach the students and the

students then become proficient at the skills, thus allowing the teachers to be able to develop a

buddy system. In the school district in this study, teachers utilized the buddy systems for

students to lead other students. In the focus group Don shared, "I have trained the students to

assist others in the classroom and in other classrooms when they are having difficulty. Teachers know I use the buddy system to assist with new technology. The buddy system method has allowed students to learn while helping others." In previous research, a computer buddy system was created at New Roads Elementary School in Santa Monica, California (Fink, 2015). Fifth grade students had opportunities for learning and leadership by being involved in lower grade classrooms. "The students come into the lower grade classrooms and showcase their projects with graphic organizers and interactive multimedia" (Fink, 2015, para. 14). The older students can show the younger students how to use their Chromebooks and model the activities while they are presenting. The current study shows participants are utilizing research-based practices to train students and to have an impact on their learning.

Major Theme 4 was validated through all of the data collection methods. The teachers' attitudes were very positive when discussing the implementation, training, support, and impacts of utilizing Google Classroom. When the participants discussed their feelings and experiences, they related that from the teacher-leader point of view, there was some apprehension and resistance from teachers who did not feel comfortable with the technology initiatives.

In a previous research study, Ballew (2017) analyzed a school district's Google Classroom integration, which included three different grade levels across the district. Teacher perceptions regarding the Google Classroom and this technology's effects on the classroom were measured via a voluntary Likert scale survey to determine whether teachers' years of experience, grade level assignment, and subject matter influenced their perceptions of the technology-based Google Classroom. In this quantitative study, Ballew found a correlation existed between the variables of years of experience, grade level assignment, subject matter, and teachers' perceptions of the technology-based Google Classroom. Ballew concluded that teachers who had a higher number of years of experience were less likely to incorporate technology into the classroom because they

were unfamiliar with the material and was not the way they had been taught when they were in college. In the current study, the participants' years of experience, ranging from 2 to 18 years, did not correlate with the perceptions of technology-based Google Classroom. All of the participants were trained on Google Classroom and were trained to utilize the LMS, they expressed they felt comfortable and had a positive attitude. Several older participants utilized the LMS daily in their classrooms as an organizational portal for assignments.

In a previous study focused on teachers' perceptions on effectiveness of Google Classroom in higher education, Azhar and Iqbal (2018) assessed teachers' perceptions of the effectiveness of Google Classroom through semistructured interviews. The sample of the study consisted of 12 higher education teachers who implemented Google Classroom for at least 1 semester in their classroom (Azhar & Iqbal, 2018). Azhar and Iqbal's analysis revealed Google Classroom did not have a significant impact on classroom teaching in Pakistan, though Google Classroom was used effectively for uploading assignments, classroom management, and communication with students. The use was limited to just those basic features. The teachers in the study did not view Google Classroom as user-friendly due to difficulty with using video streaming and other additional features. Contradicting previous research on Google Classroom in higher education, the teachers who participated in the current study shared they had very positive experiences both with digital learning and utilizing Google Classroom. They were eager to learn more and felt as if they were supported through multiple facets. Kim et al. (2013) noted teachers' beliefs about the nature of knowledge, learning, and effective ways of teaching were related to their technology integration practices. In this current study, the teachers who constantly felt supported and who were even hesitant in the initial part of the integration process, transitioned to be on board with the digital learning once they realized they would be supported, trained, and guided throughout the process.

Implications

The results of this study examining the lived experiences of North Carolina teachers

integrating Google Classroom could provide district leaders with implementation guidelines, training

and support suggestions, impacts of technology integration, and ways to address beliefs about

technology integration. This study could also provide technology department leaders an awareness

of how technology integration in the classroom can be supported by teachers. Furthermore, the

results encourage opportunities for other teachers in the nation to utilize an LMS to assist with

technology integration in their classroom. A detailed analysis of the theoretical, empirical, and

practical implications are discussed below.

Theoretical Implications

The research on elementary school teachers experiences with technology while using

apps like Google Classroom alongside of traditional curriculum and instructional strategies has

aligned with the discovery learning theory. This research has added a variety of implications for

educators, administrators, and policymakers who work in education. Previous research was

focused on the usability of Google Suite, Google Classroom, and Chromebooks. For example,

researchers have examined the impact of Chromebooks in American schools, Google apps for

education at the university level, and leveraging e-learning through Google Classroom: (Ahlfeld,

2017; Barlow & Lane, 2007; Bhat et al., 2018). However, the present study provided more

understanding of how life experiences of third to fifth grade teachers impacted their students

through the use of Google Classroom technology integration in the classroom. As they shared

their experiences, participants described components of discovery learning theory (Bruner, 1960,

1961, 1977). The experiences they shared included information about implementation, training

and support, impacts on students, and attitudes relating to technology integration. Participants

did not indicate they knew about the theory, but the principles of the theory are valuable with

regard to the understanding of third to fifth grade teachers' experiences with Google Classroom technology integration, and their own exploration while learning the technology.

Educators who are implementing a new LMS in their classroom need time to investigate. As with discovery learning theory, individuals have a chance to discover and learn on their own with minimal guidance (Thorsett, 2002). Educators have a chance to discover on their own and try out the applications before they have to implement the applications in their class. In this study, participants related that during the implementation process, teachers were able to receive their Chromebook devices before students. By receiving the Chromebooks before students, they had time to investigate and discover the possibilities of digital learning in the classroom setting. The educators could become familiar with the device and the applications in the GSFE, specifically Google Classroom, before the students got their devices.

The study participants shared the element of training and support was a key factor in making the process easy. In the discovery learning theory, individuals learn by discovering, they are given the basic training and then they are able to go on their own and try out what they have learned. Designing a way to support educators while they are discovering new ideas is a key factor. I recommend administrators, educators, and policymakers develop a training plan and design ways to support educators that allows for time to design curriculum materials and provide opportunities for trainings that will be beneficial classroom instruction. As a team, the teacher-leaders need to be able to investigate and be trained on possible classroom practices that would be beneficial for teachers to use in their own classroom just as that of discovery learning. The implementation plan can then be developed based on the findings. With training and support, educators' experiences as well as students' will be more meaningful and the content that is developed will create more impacts for students. Support includes, professional development,

colleague support, teacher-leaders in the building, an ITF, and online support.

Educators' experiences allowed for understanding of the impacts on students in their classrooms. Educators were given time to explore and discover the applications as well as time to utilize the applications on their own. Then, they proposed questions that would guide their future discovery of applications. Through the training and support offered, teachers were able to develop curriculum materials that allowed for student choice and discovery of additional applications within the GSFE. In alignment with discovery learning theory, the teachers discovered first and were then guided in the process, and then the students had a chance to discover on their own. Educators can utilize Google Classroom in a way that assists in student learning along with development of the students' skill levels within the classroom. Educators shared student work samples that highlighted student creativity, student choice, and high engagement from students.

Policymakers and administrators need to understand educators must build a level of confidence when they are implementing an LMS such as Google Classroom. When participants had a chance to try out the applications and discover on their own, they developed this level of confidence. Discovery learning allows for a frustration period in which the learner may feel overwhelmed, followed by a breakthrough moment in which they recognize they are learning (Thorett, 2002). Participants discussed a learning curve that caused some educators to become frustrated. Most of the attitudes from educators transitioned to being very positive once they understood they would be trained and supported. The educators built on their prior knowledge and were allowed to develop their skills instead of being expected to know and understanding all of the concepts and ideas initially.

Empirical Implications

The majority of the literature related to Google Classroom is focused on teacher

perceptions rather than on their experiences (Azhar & Iqbal, 2018; Ballew, 2017; Bhat et al.,

2018; Crawford, 2015; DiCicco, 2016). The only literature focusing on Google Classroom was

based on the usability of Google Classroom as a part of the Google Suite and mainly in higher

education (Barlow & Lane, 2007; Bray, 2016; Brown & Hocutt, 2015; Cortez, 2017).

Additionally, little research existed that explored North Carolina elementary teachers' lived

experiences with Google Classroom integration. This study fills the gap found in literature.

The interviews of 12 participants who were educators provided a variety of perspectives

and experiences from teachers who were involved in integrating Google Classroom in their own

classes. The participants shared similar views on technology integration reported a need for

balance and technology to be used as a tool in the classroom. All of the participants shared using

Google Classroom was a positive experience and they felt supported throughout the process.

Katie shared, "The overall experience has been positive and I am ready to continue learning

about more things to integrate into my own classroom." The participants shared with a

willingness to discuss their experiences and ideas. Many participants made suggestions for

future professional development and shared that going over the basics of Google Classroom as

they had been shown would be a good starting point to begin working with the LMS.

From the district level participants were not required to choose a specific LMS to use.

Teachers were given the option if they would like to utilize Google Classroom in their own

classrooms. Even though Google Classroom had many benefits and the schools were Google

Schools, some of the educators in the district showed hesitation. The participants shared they

initially were hesitant about the integration of Google Classroom in their own classroom. They

did not understand the exact process or how Google Classroom worked. Each student having their own computer in the classroom setting was not the norm. Realizing the students could use the devices to retrieve their work and the teachers could send different assignments out to differentiate student activities made the implementation process easier. The teachers were able to learn methods to assist in student learning and how to integrate the other Google applications within the LMS Google Classroom.

Practical Implications

Finally, this study provided practical implications for teachers, administrators, and other stakeholders involved in education. The practical implications fill the gap for elementary teachers' experiences with technology while using apps like Google Classroom along with traditional curriculum and instructional strategies. Teachers are constantly under pressure to stay up to date on the most effective research-based practices. They are eager to learn and implement new ideas in their classroom, but the proposal of the new practices and implementation processes have to be clearly planned. Having efficient support and training is vital for participants when they are involved in a new technology initiative.

The first practical implication is for administrators and instructional leaders to develop a clear implementation process within the district. Participants shared they were able to know who the teacher-leaders were, and the teacher-leaders attended initial training to become aware of the digital learning options available. They then collaboratively devised a plan with the director of technology to report to the teachers at their schools. By creating a clear and concise plan, educators knew the expectations.

Another practical implication is for administrators and instructional leaders to develop a way to train educators in a more effective manner. Each group of teacher-leaders in this study

formulated the professional development along with the technology facilitator within the county. The individual teacher-leaders knew exactly what they would be presenting and how the setup worked. They then shared the presentations with the teachers at the school through a presentation and a digital file so they would be able to recall the content when they were reviewing or having difficulty implementing the digital technology.

The third practical implication is for school districts to have a support system in place to assist when difficulties arise. The support system allows teachers to build confidence. The teacher-leaders in this school district of the present study were located at the school level and teachers could reach out at any time. One day per week an ITF assisted with coaching in the classrooms, teaching lessons, and hosting PD. Teachers could also rely on their colleagues for support when they were struggling with different topics. PD classes outside of the district were hosted for the technology leaders and within the district for teachers to attend to advance their knowledge. Many times, participants in this study shared that feeling supported gave them confidence when they were learning about a new topic.

The fourth practical implication is for schools to create a way to share ideas about curriculum topics and to continue to look for ways for students to be impacted. Curriculum ideas can be shared during professional learning communities, through email, or even in an online group. Students can benefit from teachers sharing ideas because the students have some of the same online experiences. Students can be impacted when teachers offer opportunities to increase creativity, develop an advanced understanding of content, allow students to have a variety of modalities to choose from when creating work products, and by creating feedback opportunities.

Remaining positive when challenges arise and helping educators remain eager to learn is the fifth and final implication. In education constant changes and new technologies will be

integrated. Finding ways to work through challenges as a team makes the process easier. Developing a network of teacher-leaders who understand the technology in their own classrooms allows for respectable connections to be made. When educators know and understand the individuals who are teaching them, they understand this individual has gone through the same process and can offer continued support when trying out something new. Administrators can depend on the teacher-leaders to train others and can utilize the teacher leaders as a reference for technology integration.

Delimitations and Limitations

There were both delimitations and limitations in this investigation. As the researcher, I made purposeful decisions to limit and define the boundaries of this study. The design of the study was a qualitative phenomenological study with a transcendental approach (Moustakas, 1994). This design allowed the phenomenon to be researched through in-depth descriptions from individual interviews, a focus group interview, and by each participant creating a Google Slides narrative of pictures and text to discover an understanding of the essence of the event. This approach also allowed me to write about my experiences regarding the phenomenon to expose or realize research bias.

The first delimitation was the participant criteria. The participants had to be 18 years of age, a teacher of third through fifth grade, employed at a Google school, and have utilized Google Classroom for 2 or more years. The Google school provided 1:1 devices for all study participants. This delimitation allowed me to research the phenomenon through data collected from participants who have experienced the same phenomenon.

The second delimitation was the site of study. I selected the district because of the number of teachers who worked there. Additionally, the site was near where I lived, so I could meet with the participants easily and collect the data without difficulties.

Limitations are potential weaknesses of the study that cannot be controlled, and this study had several limitations. One limitation was that most participants were female: 11 teacher participants were female and only one male participated. Another limitation was that the participants were teachers. The focus of the study was on getting their point of view based on their experiences. For future studies, adding additional stakeholders who are involved in the process may be beneficial for getting more diverse points of view.

The second limitation was the geographic location, which was in the Piedmont Triad Region of North Carolina. The location was a limitation because this study only facilitated the exploration of the experiences of the teachers living in a rural area of North Carolina. Other teachers who lived in other states or areas of the state may have other ideas to offer. The third limitation was that only teachers from one school district participated. The teachers were from several different schools, but the site was a limitation because the study was only focused on the experiences in this district.

The third limitation was the scarce resources that are available for the school districts planning to implement Google Classroom. The schools in the present study implemented a 1:1 initiative that was grant funded. Other schools may have Chromebooks available for classes to use but are shared among teachers. The number of devices that are available can create difficulties for integration if there are not enough for the students and teachers to share.

The final limitation was the grade levels used for the study. Initially, the participants were going to come from all elementary grades, but once the recruitment period started, I found that not all elementary grade educators utilized Google Classroom in their classrooms. The criterion had to be revised to third to fifth grade.

Recommendations for Future Research

Technology integration into the classroom continues to be a major topic in education. Barriers continue to be an issue when integrating technology (Conley, 2010). Finding ways to

overcome these challenges and gaining information by conducting future research will provide a variety of perspectives that can be integrated into the daily classrooms. One recommendation for future research would be to conduct a hermeneutic phenomenological qualitative study with students to share their perspectives regarding Google Classroom. Hermeneutic phenomenology, or interpretive phenomenology, uses written language as a tool for interpreting living experiences (van Manen, 1990). Gaining the students' perspectives could offer a variety of ideas for continuing to keep the students engaged. A second recommendation for future research would be to conduct a qualitative study using a hermeneutic phenomenological approach, in different types of schools, including charter, private, and public to compare perspectives of the students and teachers from various settings. The hermeneutic phenomenological approach would be utilized as a way to use written language as a means for interpretation of lived experiences. Another recommendation would be a quantitative study using a descriptive correlational approach to study the impacts on students relating to technology integration. A descriptive approach would allow the researcher to collect quantifiable information to be used for statistical analysis of the population sample. The information collected will be utilized to study the impacts in relation to technology integration.

Researching outside of North Carolina could also be beneficial for both overcoming the geographic limitation of this study and gaining multiple perspectives of educators on technology integration and Google Classroom implementation in different geographic areas. For example, using a correlational qualitative approach, different geographic areas could be studied to gain other educators' perspectives, which could be beneficial to education allowing policy makers to understand how others in different geographic locations are utilizing technology integration and Google Classroom. A correlational qualitative approach can be used to build on the existing knowledge about technology integration and determine how location is related to technology integration. Teachers are

the ones who are in the classroom daily and have the lived experiences related to technology integration (O'Dwyer, Russell, & Bebell, 2004). They will be able to share their ideas and thoughts behind what will work and what will not work. This information could then be shared with other educators and district leaders to utilize in their schools.

This study was focused on the lived experiences of third through fifth grade educators' experiences with Google Classroom technology integration. Further, an action research study could be conducted focusing on the perceptions of teachers in different grade levels, enhancement teachers, and principals. Using action research will allow other stakeholders to be involved in the research process because they will be able to self-reflect in order to improve the rational for their own practices. Studies suggest the definition of technology integration differs among researchers, educators, and policymakers (Agyei & Keengwe, 2014; Aldunate & Nussbaum, 2013; Christensen, 2002; Eady & Lockyer, 2013). Therefore, further qualitative research using a phenological approach could also be focused on the lived experiences of students in upper grades who take part in utilizing Google Classroom.

Summary

The purpose of this phenomenological study was to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. The findings from this study corroborated previous research showing training and support are vital to the success of technology integration, positive attitudes, and impacts on student learning. Technology integration can be difficult for districts and teachers to implement in their classrooms. However, Google Classroom has provided a way for educators to create, organize, and distribute activities more efficiently.

The four major themes that emerged from this study during data analysis were (a) positive implementation of technology; (b) excellent support, and training; (c) positive impact on student

learning; and (d) positive teacher attitudes about technology. Findings from the study imply that teachers are more responsive to integrating technology when they are supported properly with training. The initial training and entire implementation process are the first steps to making technology integration with Google Classroom successful. Formulating groups of lead teachers, having an ITF, offering PD, and creating a successful colleague support group are ways support can be beneficial for teachers. This crucial support and training eases technology integration, promotes more positive attitudes about technology among faculty and staff, and impacts student learning.

The findings in the study show the implementation process is vital to the success of educators' integration of digital learning in the classroom. Training and support are important for educators to feel comfortable with new application integration including Google Classroom. Impacts of teachers' classroom instruction on student understanding allows for collaboration and teamwork. Attitudes about technology integration depend on the experience, support, and implementation process. As study participant Mary noted, "The overall experience of discovering, learning, and being supported during the process has been a great experience in digital learning for both my students and myself."

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Appendix A: Participant Screening Questionnaire

1. Do you use Google Classroom for an LMS in your classroom?

2. How many years have you used Google Classroom?

3. How many years have you taught in North Carolina?

4. How often do you use Google Classroom?

Questions were created, and answers were formatted in a drop-down menu in a Google

Form.

https://forms.gle/iAB2tbzQzvM1LRux6

Appendix B: IRB Approval

July 11, 2019

Hilary Dodson
IRB Exemption ████████████ A Phenomenological Study of North Carolina K-5 Elementary Teachers' Lived Experiences with Google Classroom

Dear Hilary Dodson,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if . . . the following criteria is met:
>
> > (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation;

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office

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Appendix C: Script for Phone Call to Recruit Participants

Hi, this is Hilary Dodson. I am a doctoral student at Liberty University. You are invited to be in a research study of North Carolina Elementary Teachers' lived experiences with Google Classroom. You were selected as a possible participant because you are 18 years of age, you are teacher of kindergarten through fifth grade, you are employed at a Google school, and you have utilized Google Classroom for two or more years. Would you be interested in participating in this study? You will receive a $15.00 gift card as a part of your participation. If you are interested, I will send you a follow up form through your email for verification and consent. Thank you!

Appendix D: Email to Recruit Participants

You are invited to be in a research study of North Carolina Elementary Teachers' lived experiences with Google Classroom. You were selected as a possible participant because you are 18 years of age, you are teacher of kindergarten through fifth grade, you are employed at a Google school, and you have utilized Google Classroom for two or more years. You will receive a $15.00 gift card as a part of your participation in this study. Please contact hdodson@elon.edu if you are interested in being a participant in this study.

Appendix E: Consent Form

CONSENT FORM

A PHENOMENOLOGICAL STUDY OF NORTH CAROLINA ELEMENTARY

TEACHERS' LIVED EXPERIENCES WITH GOOGLE CLASSROOM

Hilary Dodson

Liberty University

School of Education

You are invited to be in a research study of North Carolina Elementary Teachers' lived experiences with Google Classroom. You were selected as a possible participant because you are 18 years of age, you are teacher of kindergarten through fifth grade, you are employed at a Google school, and you have utilized Google Classroom for two or more years. Please read this form and ask any questions you may have before agreeing to be in the study.

Hilary Dodson, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to understand North Carolina elementary school teachers' perceptions of Google Classroom technology integration as a lived experience. The study will investigate the research question "What are North Carolina elementary teachers' perceptions of the ways in which Google Classroom impacts classroom instruction?" This study is significant because it will contribute to the existing body of research on understanding elementary teachers' perspectives of and experiences with integrating technology, specifically Google Classroom. In addition, this research extends

beyond the current research on teachers' perspectives of and experiences with technology integration because it will explore the need for comprehending elementary school teachers'

perspectives. These experiences will include understanding the voice and emerging themes of teacher perceptions of working the LMS, Google Classroom.

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Individual Interview. Approximately 1 hour that is audio recorded for data analysis.

2. Focus Group. Approximately 1 hour that will be video recorded for data analysis.

3. Narrative Documentation through the use of Google Slides. Approximately 45 minutes of your time.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits: Participants should not expect to receive a direct benefit from taking part in this study. Benefits to society include society: Society will be able to read the study once it is published. The study will provide information on technology integration and give information on others experiences. From the experiences, other school districts can decide their implementation process and practices that may be beneficial to the implementation of technology.

Compensation: Participants will receive a $15 gift card for participation in this study.

Confidentiality: The records of this study will be kept private. In any sort of report, I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.

- Participants will be assigned a pseudonym. I will conduct the interviews in a location where others will not easily overhear the conversation.

- Data will be stored on a password locked computer and may be used in future presentations. After three years, all electronic records will be deleted.

- Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.

- I cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group but, I will remind them to be respectful and to keep information confidential.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is Hilary Dodson. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at (434)334-8098 or hdodson1@liberty.edu.You may also contact the researcher's faculty chair, Dr. Kenneth Tierce at ktierce@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

By filling out the electronic consent form the researcher has my permission to audio-record/video-record me as part of my participation in this study and I am agreeing to the terms of the study. Please click the link below to electronically sign and date the consent form.

https://forms.gle/hRkofygW7mg9StQHA

Appendix F: Standardized Open-Ended Interview Questions

1. Please introduce yourself

2. Describe your teaching background.

3. What is your teaching philosophy?

4. How do you think technology hinders or helps in today's schools?

5. What is your stance in relation to digital learning in the classroom?

6. How did your school district go about introducing the GSFE at the elementary level?

7. Describe the way you use Google Classroom and your interactions with Google Classroom.

8. How to do you use Google Classroom to teach curriculum in different content areas?

9. Describe a lesson where you used Google Classroom to differentiate instruction or target the needs of student.

10. What types of support did you receive before and during the implementation of Google Classroom?

11. What other types of support do you think would be beneficial for educators who were going through the implementation process?

12. Describe your attitude relating to your experiences with Google Classroom?

13. How do you see yourself using Google Classroom in the future?

14. What else would you like to share about Google Classroom or digital learning that we have not discussed?

Appendix G: Questions for Google Hangout Focus Group Interview

1.What is one thing you enjoy about using Google Classrooms? Engagement Question

2. What suggestions do you have for implementing Google Classroom as a school?

3. How has Google Classroom changed your teaching style in relation to collaboration?

Exploration Question

4. What are the pros and cons of using Google Classroom? Exploration Question

5. What specific type of support would be best to get teachers to use Google Classroom

in their own classrooms? Exploration Question

6. What types of things assist with educators' attitudes toward digital learning?

7. What other comments would you like to say about Google Classroom or Digital

Learning? Exit Question

Appendix H: List of Photo Narrative Suggestions

- Classroom Layout Photo

- Google Classroom Activities based on different subject areas

- Posts to students through Google Classroom

- Students' work samples

- Grading of assignments

- Support/Professional Development Opportunities -Materials from sessions

Link to slides participants will be creating

https://docs.google.com/presentation/d/176X9ZPRw_ZoDhR-

u0hDr9KrJ6SBKlgE2iSED49wg9CI/edit?usp=sharing

Slides template