A PHENOMENOLOGICAL EXPLORATION OF SECONDARY TEACHERS' PERCEPTIONS OF THE FLIPPED CLASSROOM MODEL

by

Jami Smith Weidmann

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

Liberty University

2018

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ABSTRACT

The purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. A FCM is a framework wherein students work at their own pace and use in-class time for active learning activities. The following questions were researched: (a) How do secondary FCM teachers describe their lived experiences from implementing the FCM? (b) What benefits, if any, do secondary teachers describe from implementing the FCM? (c) What challenges, if any, do secondary teachers describe from implementing the FCM? (d) What necessary resources do teachers perceive important for successful implementation of the FCM? The theory guiding this study was the diffusion of innovation (DOI) theory, which helps uncover the processes involved with the spread of an innovation or idea in a specific social system. DOI aids in the analysis of technology acceptance and adoption patterns of teachers. Data collection included questionnaires, interviews, and virtual focus groups from 12 participants, selected because they successfully used the FCM for at least one year and collaborate via social media regarding their experiences. Data were collected and analysis included organizing, synthesizing, reduction, and enumeration to develop themes. In-depth explorations of the participants' perceptions of the FCM provided rich descriptions and to answer the four research questions, five themes were identified: changes to planning and preparation, best practices, resources and tools, benefits of implementation, and gaining buy-in. Overall, although participants stated they experienced challenging situations with implementing the FCM, the benefits outweighed the challenges.

Keywords: flipped classroom, FCM, learner-centered instruction, 21st century classrooms, phenomenology, qualitative research, Diffusion of Innovations (DOI) theory

Acknowledgments

This journey would not have been possible without my amazing family. To my wonderful husband, Greg: You have loved and supported me as I took on this marathon and pursued a dream. You encouraged me every step of the way. You provided for our family and you were the glue that kept everything together. For this, and many other reasons, I am forever grateful.

To my three children, Meaghan, Richie, and Drew: Your support means so much. I started this journey while you were very young. Even though you may not have completely grasped what I was doing, you allowed me the ability to give it my all. Your sacrifices allowed me to know you believed in me, even though the struggle was real at times. I hope my dedication wears off on you and you realize that you can accomplish anything and everything you set out to achieve!

To my parents, Kent and Ginger: You made me who I am today! Without your love, guidance, and support, I would not be here! Your parenting has pushed me to be all I can be, and while I know I'm often "too busy" for my own good, knowing you were always there for me was priceless.

To my in-laws, Ann, George, and Beth: You put up with me writing and working every family vacation and/or holiday for many years. You sat with me under the cottage and helped edit my paper. Thank you for always being there when Drew called, as I was off somewhere writing and he just wanted to chat! But most importantly, you gave me the love of my life, and for that I am forever grateful.

To Ms. Lori Wimbush and Mr. Dominick McKee: Your love for your students and peers has worn off on me, and for that, I am forever thankful. You both are amazing people, and I am

so proud to call you my mentors! All the times I've called or texted, desiring guidance, you provided me just what I needed at just the right time. I can't wait to pay it forward!

To Donnie Smith (I'm not putting the Mr. because it will soon be Dr.). I'm so thankful for meeting you that day in Dr. Black's class. God definitely put you in my path. Without you, I'm not sure where I would be. Your friendship, guidance, and strength has carried me a long way! This journey has been a wild ride for both of us… the end is in sight… keep on pushing!

To my committee: Thank you, from the bottom of my heart, for helping me finish this journey. God placed each of you in my path! Your guidance has been invaluable during this adventure! While there were many hurdles to overcome, you got me through each… I can't thank you enough for that!

Finally, thank you to my participants who gave their time to serve in this study. Each of you amaze me, day in and day out! I watch your passion unfold on Twitter daily. You are all amazing at what you do! I can't wait to get back to the typical daily schedule and share in the "fun" that constantly unfolds with the active classroom!

Table of Contents

ABSTRACT....3

Acknowledgments....4

List of Tables....10

List of Figures....11

List of Abbreviations....12

CHAPTER ONE: INTRODUCTION....13

- Overview....13
- Background....14
  - Historical....14
  - Social....16
  - Theoretical....17
- Situation to Self....17
- Problem Statement....19
- Purpose Statement....20
- Significance of the Study....21
  - Empirical Significance....21
  - Theoretical Significance....23
  - Practical Significance....23
- Research Questions....24
- Definitions....26
- Summary....27

CHAPTER TWO: LITERATURE REVIEW....29

Overview....29
Theoretical Framework....30
Related Literature....35
Essential 21st Century Skills....37
Attributes of an Innovative Classroom....44
The Flipped Classroom Model (FCM)....49
Summary....58
CHAPTER THREE: METHODS....60
Overview....60
Design....60
Research Questions....62
Setting....62
Participants....63
Procedures....64
The Researcher's Role....65
Data Collection....66
Step 1: Questionnaire....67
Step 2: Interviews....67
Step 3: Virtual Focus Groups....70
Data Analysis....71
Trustworthiness....74
Credibility....74
Dependability and Confirmability....75

Transferability 75
Ethical Considerations 76
Summary 76
CHAPTER FOUR: FINDINGS 77
Overview 77
Participants 77
Aaron 78
Ada Grace 79
Anne 80
Arnold 80
Barry 81
Kate 82
Mary 83
Mike 84
Samuel 85
Sara 86
Sue 87
Tom 88
Focus Group 1 89
Focus Group 2 89
Results 89
Theme Development 89
Research Question Responses 107

Summary 110

CHAPTER FIVE: CONCLUSION 112

Overview 112

Summary of Findings 113

Research Question 1 113

Research Question 2 115

Research Question 3 115

Research Question 4 116

Discussion 117

Implications 123

Theoretical Implications 123

Empirical Implications 125

Practical Implications 126

Delimitations and Limitations 127

Recommendations for Future Research 129

Summary 130

REFERENCES 133

APPENDIX A: IRB APPROVAL 164

APPENDIX B: QUESTIONAIRRE 165

APPENDIX C: CONSENT FORM 168

APPENDIX D: OPEN CODING RESULTS 171

APPENDIX E: THEME FORMATION RESULTS 175

List of Tables

Table 1. Open-Ended Interview Questions 68

Table 2. Virtual Focus Group Questions 71

Table 3. Participant Demographics 78

Table 4. Best Practices for FCM Implementation (Subthemes) 96

List of Figures

Figure 1. Adaptation of Rogers' (2003) diffusion of innovation theory.....32

List of Abbreviations

Association of College and Research Libraries	(ACRL)
American Association of School Librarians	(AASL)
Bring your own Device	(BYOD)
Diffusion of Innovations	(DOI)
Flipped Classroom Model	(FCM)
Information, Communications, and Technology	(ICT)
National Council of Teachers of English	(NCTE)
National Council of Teachers of Mathematics	(NCTM)
Partnership for 21st Century Learning	(P21)
Science, Technology, Engineering, and Math	(STEM)

CHAPTER ONE: INTRODUCTION

Overview

Two-thirds of American high school graduates lack the essential skills needed for college (DiBenedetto & Myers, 2016; Shuptrine, 2013). Consequently, industry leaders are concerned that high school graduates are not adequately prepared to meet 21st century demands and be productive in the workforce. Society is asking that teachers use active learning methods to simulate scenarios that prepare 21st century students (Alismail & McGuire, 2015; Bradford, Mowder, & Bohte, 2016; Ertmer, Schlosser, & Clase, 2014; Gullo, Ha, & Cook, 2015; Tawfik & Lilly, 2015). The flipped classroom model (FCM) is one method with which secondary teachers are experimenting to address current needs. A FCM is a framework wherein students work at their own pace to watch online video lectures, uploaded by the teacher before classroom sessions, and use in-class time for significant learning activities, problem-solving, and collaboration (Birbal & Hewitt-Bradshaw, 2016; Fautch, 2015).

For my study, I used a transcendental phenomenological study approach with questionnaires, interviews, and a virtual focus group to collect data from 10 to 15 secondary teachers who use the FCM. Using Rogers' (2003) diffusion of innovation (DOI) theory as a framework, the purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. Examining the perceptions and lived experiences of secondary teachers was instrumental in gaining a deeper insight into the effective implementation of a secondary FCM (Tawfik & Lilly, 2015). This chapter will provide details about the background, situation to self, purpose, and significance of my investigation into the use of a secondary FCM.

Background

Academic achievement of students is no longer the only expectation with which teachers are concerned (DiBenedetto & Myers, 2016). Teachers should supply future leaders with skills, dispositions, and knowledge to become problem solvers and critical thinkers and provide solutions to real-world problems (DiBenedetto & Myers, 2016; Schmidt, 2012). Drawing from a constructivist approach, secondary teachers should provide students the opportunities to observe and create knowledge by exposing them to problem-solving tasks that include real-world simulations and integrating digital tools to form active learning experiences (Alismail & McGuire, 2015). The FCM is one approach that focuses on developing the critical thinking and problem-solving skills of students (Birbal & Hewitt-Bradshaw, 2016; Fautch, 2015). Looking at the historical, social, and theoretical backgrounds help address the research needed to describe the perceptions and lived experiences of secondary teachers regarding the implementation of a FCM in secondary classrooms in the United States.

Historical

The standard instructional approach that many teachers use in their classrooms is the traditional teacher-directed instruction, wherein teachers have an active role in teaching core ideas or concepts through lectures, tests, and assignments (Kurt, 2017). The focus of teacher-directed instruction is to provide information to students through structured activities (Lerkkanen et al., 2016). In teacher-directed instruction, teachers provide less focus on the individual interests and characteristics of children and their ability to learn through peer interaction and the development of social skills. Teacher directed instruction follows four main concepts: help students develop intellectual skills and knowledge, prepare students for work, prepare students

socially to be good citizens, and enable students to gain personal knowledge (DiBenedetto & Myers, 2016).

Evidence shows the need for a decrease of classroom lectures and an increase in active learning (Auerbach & Schussler, 2016; Sletten, 2017). Researchers found that the integration of technology in core curriculum produced positive results and aided in students' comprehension of concepts for the 21st century (Bhagat, Chang, & Chang, 2016). School leaders must focus on equipping students with the skills and knowledge to succeed. Empirical evidence showed that some teachers are using the FCM to enhance the students' critical thinking skills and integrate technology in the classroom (Hwang, Lai, & Wang, 2015; Kong, 2014; O'Flaherty & Phillips, 2015).

Most researchers have credited Jonathan Bergmann and Aaron Sams with the FCM (Arnold-Garza, 2014). However, Lage, Platt, and Treglia (2000) first referred to the flipped or inverted classroom. Lage et al. (2000) stated that technology advances for faculty and students have "created an environment where [multiple] layers of learning can be integrated without inordinately increasing contact time or sacrificing course coverage" (pp. 30-31). While Bergmann and Sams take credit for pioneering the FCM, they do recognize "a couple of professors from the University of Miami" who wrote an article in 2000 about what they termed as the inverted classroom, but suggested their idea did not "take off, because… it wasn't the right time. YouTube wasn't around yet" (Noonoo, 2012, para. 4), thereby giving some credit to Lage et al. (2000). In 2007, Sams and Bergmann completely stopped giving live lectures in their chemistry courses and started showing pre-class videos that they originally termed prebroadcasting. Since 2007, the FCM has evolved, but consistently has two defining

components: electronically delivered lectures before class and practical application provided inside the classroom (Arnold-Garza, 2014).

Social

Society demands that teachers supply specific 21st century skills to students so they may become problem solvers and critical thinkers (DiBenedetto & Myers, 2016). Having these skills gives future leaders the ability to shift classroom experiences into real-world situations (DiBenedetto & Myers, 2016; Schmidt, 2012). Teachers have increased pressure to transform standard instructional practices to meet the conceptual demands of society (O'Flaherty & Phillips, 2015). It is important that teachers incorporate these skills purposefully into every classroom (Kivunja, 2015). The FCM is one method that may provide an innovative way for teachers to expose their students to problem-solving tasks that may enhance critical thinking skills and the ability to solve real-world issues (Alismail & McGuire, 2015).

According to Tucker (2014), teachers may provide 21st century skills by bridging the gap between the world and the classroom, which teachers integrate using the Internet and technology. Secondary teachers must provide successful classroom settings to fulfill the life skills and 21st century needs of students (DiBenedetto & Myers, 2016). Society requires that employees be available and fully prepared for successful employment. Many teachers find the instruction of 21st century skills difficult because of the lack of standardization, the absence of such curriculum, and insufficient preparation (Voogt, Erstad, Dede, & Mishra, 2013).

Without current skills, Americans may miss the mark in meeting the diverse and innovative demands of a changing society (Moreno, Tharp, Vogt, Newell, & Burnett, 2016). According to Tucker (2014), the skills of students will become irrelevant if teachers do not place enough emphasis on adapting to the world that is dependent on technology and other innovative

practices. Students who successfully develop their 21st century skills excel in different aspects of their lives in the workforce as professionals, business owners, or organizational employees (Kivunja, 2014). The successful acquisition of 21st century skills may give future graduates the ability to compete in the workforce (Tucker, 2014).

Theoretical

The theoretical rationale for the FCM was that students learn through problem solving and self-exploration, thereby underscoring the importance of developing instructional strategies that expose students to problem-solving tasks (Alismail & McGuire, 2015). Vygotsky's (1978) social constructivist learning theory and Bruner's (1966) cognitive constructivist theory showed that meaningful learning only occurs when students actively engaged within the classroom. Therefore, teachers must structure classroom environments to address problem-solving through simulating real-world issues and integrating digital tools to form active teaching methods (Alismail & McGuire, 2015). The FCM centers on the self-directed learning theory (SDL), which places the groundwork for knowledge construction through videos watched by students outside of class and brings active learning opportunities into the classroom (Sletten, 2017).

Situation to Self

While working in a secondary, public school setting, I attended a faculty meeting on the concept of the FCM where administrators gave teachers the opportunity to use the approach. I was intrigued to learn that I was the only teacher who wanted to consider the model and see how it fit into my classroom. I decided I would do a modified FCM by changing one aspect of my classroom at a time. The first and easiest way to start was to screen record the lesson as I taught it during the day, and then place it in Blackboard (a classroom platform) for students to watch at

their leisure. This action did not take any extra time; students were interactive and asked questions, and class flowed as normal.

Within a few weeks, I realized that screen recording the lessons was of great help for the students who were absent from class. Not only did the recordings assist absent students in keeping updated with missed lectures, but also it allowed me to gain valuable teaching time that I used to spend re-teaching the material one-on-one. Struggling students also benefitted by re-watching lectures on their own time to understand the material better. Therefore, without an enormous amount of effort or change to my usual routine, I ensured that every student had access to the lecture and countless attempts to understand the content. Furthermore, I would have the recordings available to assign before class in future years, which would help implement a true FCM.

Seeing the benefits personally, I discussed the change with the other secondary teachers in my department. While my colleagues liked the approach and the added benefits the modified FCM was providing for my classroom, they felt a bit uneasy regarding recording their lessons. Several teachers revealed that they simply did not know how or where to start the process. These comments confused me because I did not feel the process was difficult. However, I planned extensively for each lesson by typing notes and examples to show on the interactive whiteboard. Many of my colleagues lacked plans that included specific problems for students. Instead, they found examples as they proceeded through lessons. Therefore, it would take some teachers extra planning time to record their lessons for open viewing

I often contemplated on why some teachers branch out and try new delivery methods, while others continue to teach the way they have for years, even when they desire change. I believe in the importance of educators working together to build active classrooms to meet 21st

century needs. According to Knowles, Holton, and Swanson (2012), adults are not motivated to learn new skills until they know why or see value in why they should learn something new. This study will use an epistemological assumption to get as close as possible to the participants in order to understand why they chose to use the FCM and how their delivery methods enhance 21st century skills. Using an interpretive framework of social constructivism and looking at Rogers' (2003) Diffusion of Innovation theory, I will use a transcendental phenomenological study to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States.

My ontological assumption provided an understanding that the results I received from my participants might be based on their perceptions, rather than the reality of the situation within the classroom. My epistemological assumption was that I developed meaningful interactions with the secondary FCM teachers, which was needed to ensure I collected authentic data for my study, as suggested by researchers (Guba & Lincoln, 1988). My axiological assumption allowed for my values regarding education to be a part of the study, as I am passionate about the need for students to obtain 21st century skills in order to be successful in their future. My rhetorical assumption supported my desire to provide teachers and leaders, from the results of this study, with suggestions on how they could add 21st century skills actively into their classrooms.

Problem Statement

Two-thirds of American high school graduates lack essential skills needed for college, causing industry leaders to become concerned with workforce preparedness (DiBenedetto & Myers, 2016; Shuptrine, 2013). The quality of life and future of Americans is at risk because economic success depends on the workforce (Moreno et al., 2016). With workforce demands changing, teachers must change the way they educate to keep up with educational needs (Tucker,

2014). Research showed that teachers must utilize research-based active learning methods and simulate real-world experiences to prepare 21st century students (Alismail & McGuire, 2015; Bradford et al., 2016; Ertmer et al., 2014; Gullo et al., 2015; Tawfik & Lilly, 2015).

One method with which teachers are experimenting to prevent stagnant classrooms is the FCM: an instructional framework wherein students work at their own pace to watch online video lectures uploaded by the teacher before class and use in-class time to collaborate in significant learning activities, problem-solving, and group discussions (Birbal & Hewitt-Bradshaw, 2016; Fautch, 2015). Researchers found when teachers attempt new instructional strategies, they often terminate or modify the application process due to lack of knowledge, which may cause students to have underdeveloped skills (Khatri et al., 2016). Despite the seemingly positive benefits of the FCM, this "approach is under-evaluated, under-theorised, and under-researched" (Abeysekera & Dawson, 2015, p. 2). In fact, there has been little, if any, formal investigation of the perceptions and lived experiences of secondary teachers regarding the implementation of a secondary FCM. To help teachers understand the complexities of the FCM, it was important that I conducted a qualitative transcendental phenomenological study to determine the benefits, challenges, and resources involved in the proper execution of the successful FCM.

Purpose Statement

The purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. The FCM is an instructional strategy, wherein students work at their own paces to watch online video lectures, uploaded by the teacher before classroom sessions, and use in-class time to collaborate in significant learning activities, problem-solving, and group discussions (Bhagat et al., 2016; Birbal & Hewitt-Bradshaw, 2016; Chen, Wang, Kinshuk, &

Chen, 2014; Davies, Dean, & Ball, 2013; Fautch, 2015). The theory guiding this study was Rogers' (2003) diffusion of innovation theory. Teachers should understand why they embrace or resist change by recognizing innovation, decision-making processes, and knowing how one fits into the categories of adopters. Acknowledging the acceptance or resistance to change is important because 21st century teachers must develop an innovative classroom to disseminate current skills to America's future leaders (Kivunja, 2015).

Significance of the Study

In this section, I identify the significance of my study and explain why it is important to describe the lived experiences of secondary teachers regarding their implementation of a FCM in secondary classrooms in the United States. This study may contribute to the body of literature available for administrators and teachers by providing information on the benefits, challenges, and resources that others use in the successful FCM. The empirical, theoretical, and practical significance of my study emphasizes how the information I gather may close the gap on research regarding a secondary FCM.

Empirical Significance

The empirical significance of my study was in the contribution of perceptions and lived experiences of secondary teachers regarding the implementation of the FCM. The empirical data might help others wanting to transition into an active learning environment that replicates real-life experiences for students, as this might be a difficult process (Tawfik & Lilly, 2015). This study provided research on what the successful secondary FCM teacher experiences during planning, implementation, and reflection of this approach to active learning. According to Moustakas (1994), the phenomenological approach reduces each participant's perceptions and experiences into an overall essence, which helps to identify the shared, lived experience of

secondary teachers who use the FCM. By analyzing feedback from successful teachers using the FCM, teachers who are considering adoption of the FCM may imitate the process that other secondary teachers used to create their flipped classroom, thereby raising the opportunity level for more students to have self-directed learning chances to integrate information and apply knowledge.

Current researchers who studied the FCM focused predominantly on college student perceptions of the model (Birbal & Hewitt-Bradshaw, 2016; Jeong, González-Gómez, & Cañada-Cañada, 2016; Long, Logan, & Waugh, 2016b; Ogden, 2015; Tawfik & Lilly, 2015; Van Sickle, 2016; Wanner & Palmer, 2015). Most of these researchers used a quantitative or mixed methods approach (Jeong et al., 2016; Long et al., 2016b; Ogden, 2015; Van Sickle, 2016; Wanner & Palmer, 2015). Some researchers considered students' outcomes in relation to a FCM, finding that student performance linked to student perceptions of the FCM (Blair, Maharaj, & Primus, 2016; Chen, Yang, & Hsiao, 2016). Other researchers studied college level teachers' perceptions of the FCM (Basal, 2015; Wanner & Palmer, 2015). Muir and Geiger (2016) used an exploratory case study methodology to focus on one teacher's perceptions, alongside students' perceptions, in a secondary math classroom.

There was a paucity of studies on the FCM at the secondary level. Studies about college students do not necessarily apply to secondary students. Evidence showed that teachers might use the FCM to develop 21st century skills (Hwang, Lai, & Wang, 2015; Kong, 2014; O'Flaherty & Phillips, 2015); however, more empirical research was needed to justify this statement in secondary classrooms.

Theoretical Significance

The theoretical significance of my study derived from the contribution to the study's framework of Rogers' (1962, 2003) diffusion of innovation (DOI) theory. I used the DOI to help explain the adoption of innovation, such as a FCM. I used the components of the theory, such as attributes of innovation, decision process, and the adopter categories, as the foundation for the exploration of the adoption of a FCM in the secondary classroom. Even though previous researchers have utilized the theory to contextualize the adoption of an innovation theoretically (Celik, Sahin, & Aydin, 2014), there was limited evidence supporting its applicability in the FCM. The results of my study provided support regarding the role of DOI in the adoption or rejection of a secondary FCM.

Practical Significance

From a practical standpoint, teachers should continually work to improve their classrooms. Students need specific skills to achieve success in a workforce reliant on technological innovations and critical thinking skills (Alismail & McGuire, 2015; DiBenedetto & Myers, 2016; Kivunja, 2015). Teachers have to be aware of these skills and modify their instructional strategies (Ramburg, 2014; Sleegers, Thoonen, Oort, & Peetsma, 2014) using research-based active learning methods (Alismail & McGuire, 2015; Bradford et al., 2016; Ertmer et al., 2014; Gullo et al., 2015; Tawfik & Lilly, 2015). Exposing secondary teachers' perspectives of the FCM, one choice for a 21st century active learning classroom contributes valuable information for teachers, administrators, students, and parents about the processes of the methodology, and possibly lead to related studies that become a resource, as well.

Research Questions

The purpose of this study was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. This study provided valuable information to new and veteran teachers. Secondary teachers might decide to implement the FCM as a strategy to improve the academic achievement of their students. I proposed the following four research questions:

RQ1: How do secondary FCM teachers describe their lived experiences from implementing the FCM?

Because of the popularity of technology, economic uncertainties, and increasing competition, society has higher expectations of teachers to seek new approaches to teaching (Alismail & McGuire, 2015; Bradford et al., 2016; Ertmer et al., 2014; Gullo et al., 2015; Kivunja, 2015; Stamatel, Bushway, & Roberson, 2013). Consequently, a principal goal of 21st century schooling is to prepare students to have the skills to develop solutions to real problems in the workforce (Tawfik & Lilly, 2015). Current teachers use frameworks that center on student engagement to enhance the critical thinking skills of students through inspiring collaboration while ensuring student responsibility (Jarvis, Halvorson, Sadeque, & Johnston, 2014). My goal with the first research question was to discover the lived experiences of secondary FCM teachers to gain a general overview of their perceptions regarding the use of this approach in the 21st century classroom.

RQ2: What benefits, if any, do secondary teachers describe from implementing the FCM?

Student achievement comes when high school graduates have the skills that allow them to retrieve and recognize information through critical thinking for personal and employment use

in today's media and technology-filled society (Kivunja, 2015). Researchers indicated that the use of technology could enhance instruction and student achievement (Connell, 1998; Kivunja, 2015; Roschelle, Pea, Hoadley, Gordin, & Means, 2000; Stols & Kriek, 2011). When teachers know of the noted practicality and advantages of technology in the classroom, they may be inclined to use such technology (Stols & Kriek, 2011). My goal with this second research question was to discover the lived experiences of FCM secondary teachers to gain a deeper understanding of why a FCM might be beneficial as an instructional strategy in secondary classrooms.

RQ3: What challenges, if any, do secondary teachers describe from implementing the FCM?

Even though technology-based instructional strategies have been effective, the implementation may be challenging. Students may struggle academically due to technology offering a facilitative role compared to students relying on their teachers to fill that role (Ertmer et al., 2014). Teachers may also face difficulty transitioning their classrooms to be more student-centered rather than teacher-centered. By identifying the potential challenges with implementing the FCM, other secondary teachers may be prepared to anticipate and address the problems they are likely to encounter when using a FCM. My goal with the third research question was to discover the challenging experiences of FCM teachers to gain deeper insights into the implementation process involved in using the FCM in secondary classrooms.

RQ4: What necessary resources do secondary teachers perceive important for successful implementation of the FCM?

Secondary teachers' beliefs may influence their teaching practices and decisions, including their views on the integration of technology in the classroom (Debuse, Lawley, &

Shibl, 2008; Stols & Kriek, 2011). For instance, researchers showed that inquiry-based education was difficult for teachers (Ertmer et al., 2014). Secondary teachers must be aware of students' experiences through real-world scenarios and present knowledge in an organized manner that scaffolds their knowledge but escapes overloading students (Shuptrine, 2013). Researchers found that a teacher's use of quality resources is vital to students' learning (Herro, 2015; Preston, Goldring, Guthrie, Ramsey, & Huff, 2016). Identifying helpful resources from other secondary teachers who have adopted the FCM may aid teachers in their transition to a 21st century active classroom. These resources may also give administrators ideas for future professional development seminars. Past research showed the availability of resources was an important factor that influenced positive learning results (Elliott, Rhoades, Jackson, & Mandernach, 2015; McKnight et al., 2016). Given the empirical support for the importance of resources, the fourth research question was significant in identifying the essential resources that were unique to the successful implementation of the secondary FCM.

Definitions

1. *Active classroom* - An active classroom is a form of instruction that shifts the focus from teaching to learning, placing students at the center of instruction and emphasizing peer interaction through consistent opportunities to apply learning within the classroom (Armbruster, Maya, Johnson, & Weiss, 2009).
2. *Flipped classroom method (FCM)* – A FCM is a framework wherein students work at their own pace to watch online video lectures, uploaded by the teacher before the classroom sessions, and use in-class time to collaborate in significant learning activities, problem-solving, and group discussions (Birbal & Hewitt-Bradshaw, 2016; Fautch, 2015).

3. *Innovativeness* - Innovativeness pertains to the "degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a system" (Rogers, 2003, p. 242).
4. *Self-efficacy* - The self-belief of how an individual links personal awareness of his or her capabilities to initiate actions that are vital to complete a particular task (Parker, Marsh, Ciarrochi, Marshall, & Alah Abduljabbar, 2014).

Summary

In Chapter One, I discussed the background of the FCM, explaining how research showed the need for secondary teachers to utilize research-based active learning methods within secondary classrooms to prepare students for 21st century needs (Alismail & McGuire, 2015; Bradford et al., 2016; Ertmer et al., 2014; Gullo et al., 2015; Tawfik & Lilly, 2015). Secondary teachers must continuously consider alternative methods to meet current needs (Kivunja, 2015; Kurt, 2017). I discussed why I chose to research the FCM, describing how the seemingly positive benefits helped me, but established the need for more research needed to address the growing trend of the FCM in secondary classrooms. I explained how previous researchers of the FCM implementation focused primarily on college students, involved quantitative and mixed method research approaches, and focused on the effects of a FCM on student achievement (Birbal & Hewitt-Bradshaw, 2016; Ogden, 2015; Tawfik & Lilly, 2015; Van Sickle, 2016; Wanner & Palmer, 2015). I then delineated the problem: two-thirds of American high school graduates lack essential skills needed for college, causing industry leaders to become concerned with workforce preparedness (DiBenedetto & Myers, 2016; Shuptrine, 2013). The problem directed me to the purpose for my study, which was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. Next, I

deliberated the significance of the transcendental phenomenological study method, and I stated how the secondary FCM needs more empirical research to determine the impact it has on creating an active, secondary environment. I also examined the theoretical significance of the DOI theory, discussing the adoption patterns to help provide clarity for teachers wanting to gain a deeper insight into the effective implementation of a secondary FCM. To end chapter one, I stated my research questions that I used to guide my study. I also provided pertinent definitions that are relevant to my study.

CHAPTER TWO: LITERATURE REVIEW

Overview

Today's teachers must prepare 21st century students to be career and college ready, a multifaceted task involving collaboration among industry leaders, schools, colleges, policymakers, and business leaders (DiBenedetto & Myers, 2016). To enhance student classroom engagement and achievement, researchers and practitioners have investigated alternative methods that encourage differentiation and active learning tactics to involve students in the learning process (Kivunja, 2015; Kurt, 2017). Kurt (2017) proposed that constructivist approaches to learning, wherein teachers gave students the opportunity to explore and solve problems, would work as an alternative to the more traditional teacher-directed instructional methods.

The flipped classroom model (FCM), rooted in a constructivist approach to learning, is an instructional framework centering on student engagement that uses collaboration and self-regulation to help incorporate critical thinking in the classroom (Birbal & Hewitt-Bradshaw, 2016; Hao & Lee, 2016; Kurt, 2017; Shaffer, 2016). With the FCM, students retrieve online video lectures uploaded by their teacher prior to the classroom session, work at their own pace (Davies et al., 2013), and use in-class time to collaborate in significant learning activities, problem-solving, and group discussions (Bhagat et al., 2016; Chen et al., 2014; Fautch, 2015). This model brings a shift in paradigm from the teacher-centered approach to a student-centered approach (Kong, 2014; Lai & Hwang, 2016). Despite the seemingly positive benefits of the FCM, this method lacks proper research (Abeysekera & Dawson, 2015). Therefore, this study was based on the lived experiences of secondary teachers and their use of a FCM in their secondary classrooms. This literature review was centered on the diffusion of innovation (DOI)

theory. Researchers use this framework to help analyze rejection or acceptance of innovations and adoption patterns within a community (Rogers, 2003). This review will focus on the expected 21st century skills of students and the attributes of an innovative classroom. The chapter will conclude with a description of the FCM and explain the gap in the literature that may justify further research.

Theoretical Framework

I used the DOI theory to guide this research by exploring secondary teachers' perspectives and their lived experiences in the implementation of a FCM. One must understand the dissemination of innovation within a community of teachers, such as the adoption or rejection of a modernized teaching method (Celik et al., 2014). The DOI theory was an appropriate choice for this study because it helped in the analysis of technology acceptance and adoption patterns of teachers (Zayim, Yildrim, & Saka, 2006).

Researchers trace the origin of DOI from varied disciplines, ranging from agricultural sociology to organizational systems (Pemberton, 1936; Ryan & Gross, 1943). Rogers (2003) credited Tarde as the founding father of diffusion research. Tarde (1903) conceived a diffusions framework that conceptualized different cultures as distinct individuals and explained how beliefs spread in a given social context. Tarde observed generalizations regarding diffusion of innovations, which he called laws of imitation. Tarde's (1903) purpose was "to learn why, given one hundred different innovations conceived at the same time…ten will spread abroad while ninety will be forgotten" (p. 140). Tarde felt diffusion was a basic explanation of human behavior change.

Simmel (1950) was another prominent figure in the process of diffusion. According to Simmel, social networks serve to influence or constrain an individual's actions. His interest in

the concept of a stranger, defined as a disengaged member of a group, led to a unique view of the system of which the stranger belonged. Rogers (2003) stated that Simmel's (1950) idea linked an innovator as a type of stranger within a given system, allowing for an easier deviation from the norms by being the first to accept new ideas.

Ratzel (1885) and Frobenius (1898) were also involved in the foundation of DOI theory. Ratzel (1885) developed a set of criteria that allowed for the comparison of the formal and non-formal characteristics of innovation. Ratzel contended that the process of migration and borrowing facilitates diffusion of culture. Frobenius (1898) expanded the work of Ratzel (1885) by developing the concepts of culture circles and cultural strata. According to Frobenius (1898), culture circles involve a select number of individuals within a culture who are the first to use a particular innovation or belief system. When people migrate from cultural circles to other cultural circles, they diffuse cultural traits.

In the United States, the DOI concept originated from rural sociology (Ryan & Gross, 1943). Ryan and Gross (1943) focused on the mechanisms involved in the diffusion of hybrid seed corn in two Iowa communities. They advanced agricultural technology by explaining how farmers adopted hybrid seeds, equipment, and techniques by using diffusion concepts, such as acceptance and communication channels. According to Rogers (2003), the seminal work of Ryan and Gross influenced the understanding of innovation diffusion in a given context, as well as the important role of social networks in the diffusion process within a system.

Diffusion has become relevant in other fields that include sociology, anthropology, education, the utilization of medicines, medical techniques, and health care (Berwick, 2003). Pemberton (1936) formulated an epidemiological structure to explain institutional diffusion within a given cultural system. Pemberton viewed diffusion as cultural, as characterized by

regular patterns that can be quantitatively determined. Based on the cases analyzed by Pemberton, diffusion in a specific cultural context occurs in a normal frequency curve as influenced by the characteristics of a given population.

Rogers (1962) developed an interest in the diffusion model, which helped him move from the field of sociology to communications. Over the decades, Rogers published five editions of his diffusion book. His current edition broadened his beliefs in diffusion because he believed "that the widespread diffusion of the Internet since about 1990 has changed the nature of the diffusion process in certain important ways" (Rogers, 2003, p. xviii). Rogers (2003) expressed the Internet helped to "illuminate our understanding of inequality in the consequences of innovation… [and] may be changing the diffusion process in certain fundamental ways, such as by removing…the role of spatial distance in who talks to whom about a new idea" (p. xix).

Rogers' (2003) DOI theory was used to aid in understanding the process of using a FCM. A FCM requires turning traditional lecture-based classrooms into active classrooms with technology. The three main factors of DOI, which provided an explanation for the adoption of a FCM and help teachers to understand how to transition their classrooms, included (a) the attributes of innovation, (b) the decision process, and (c) the adopter categories (Figure 1).

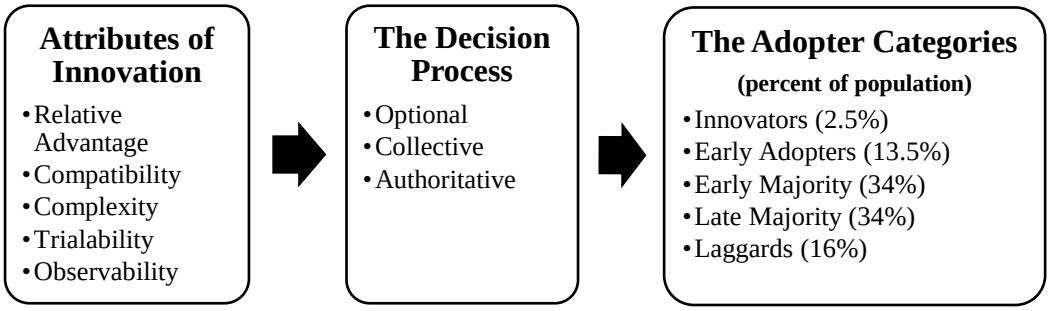

Figure 1. Adaptation of Rogers' (2003) diffusion of innovation theory.

Rogers' (2003) DOI theory has five factors that influence the adoption of innovation: (a) relative advantage, (b) compatibility, (c) complexity, (d) trialability, and (e) observability.

Rogers described relative advantage as the extent to which an innovation proves more or less advantageous compared to the concept it replaces. This characteristic implies that teachers must see an advantage to the FCM to consider using the instructional innovation. Rogers depicted compatibility as the comparison of experiences, values, and the inherent needs of the adopter. Rogers describes complexity as the level of perceived difficulty of innovation, such as the FCM. Rogers analyzed this idea from an opposite point of view and implied that ease of use and understandability of the innovation play a factor in the acceptance of innovation. The fourth characteristic, trialability, is "the degree to which an innovation may be experimented with on a limited basis" (Rogers, 2003, p. 16). Trialability implies that teachers are faster to endorse methods if other teachers around them are experimenting and using the specific model. Rogers' (2003) last characteristic of innovation is observability, which is the scope to which the adopter explores the outcome of innovation and decides if s/he will accept or reject the innovation.

According to Rogers (2003), deciding to adopt an innovation means making a choice to use the method in its entirety, as it is what the adopter feels is the best option available. The decision maker for, or against, the innovation can vary. The change may be optional, wherein the adopter decides to use an innovation, such as the FCM, without any pressure from other people. The change may be collective, wherein pressure from others causes the adoption of innovation. Lastly, the change may be authoritative, where administration, for example in the case of a FCM, decides that teachers must use the innovative approach.

Once there is a decision to adopt, the implementation process may begin (Sahin, 2006). Adopters may use reinvention during this phase (Rogers, 2003). Reinvention is "the degree to which an innovation is changed or modified by a user in the process of its adoption and implementation" (Rogers, 2003, p. 180). According to Rogers (2003), a person using

reinvention will have an increased speed of adoption. However, when teachers modify the application of new instructional strategies, it may cause students to have underdeveloped skills needed for post-graduation expectations (Khatri et al., 2016).

After a person adopts an innovation, he or she has entered the confirmation stage, where the adopter looks for support of the decision to use the innovation (Sahin, 2006). During this stage, if the individual is "exposed to conflicting messages about the innovation," the decision may be reversed (Rogers, 2003, p. 189). Therefore, attitudes and support systems are critical during this stage of adoption (Sahin, 2006). This stage is when discontinuance may occur if an adopter does not perceive a relative advantage and identifies a different innovation that may better suit his or her needs.

In addition to the five characteristics of innovation and the three innovativeness levels, Rogers (1962) used five labels to classify the eagerness of people in adopting an innovation. The five groups that classify adopters of innovation include the innovators, early adopters, early majority, late majority, and the laggards. The innovators, 2.5% of the population, like to take risks, are adventurous, and often moved by technology. The early adopters, 13.5% of the population, investigate innovations on their benefits and help steer other potential adopters toward acceptance. This group integrates with society more than innovators, which help reduce uncertainties of the innovation to their immediate environment. The early majority, 34% of the population, do not want to be the first or last to try new things, so they wait and make sure the early adopters maintain adoption. The late majority group, 34% of the population, tends to be skeptical, conservative, and less risky. The last group, the laggards, comprises 16% of the population and is inclined to adhere to old and traditional ways, only adopting an innovation if it becomes an established practice (Rogers, 1962).

I used Rogers' (2003) DOI theory as the framework to help decipher why and how people in a social system adopt innovations to replace previous ideas or systems. Rogers' DOI theory assisted teachers in understanding technology adaptation and traits within adopter categories, which might help other secondary teachers to comprehend the process. Teachers need specific training, tailored to the needs within their adopter category when administration requires the adoption of a FCM (Beaton & Freeman, 2016).

Related Literature

For teachers to stay current and remain effective, they must continually rethink approaches to teaching and implement modern learning environments conducive to all types of learners (Patti, Holzer, Stern, & Brackett, 2012). In teacher-centered classrooms, the teacher must have the capabilities to enable students to obtain success (Peabody, 2011). Teachers must reconsider traditional lectures and chalkboards, as researchers have provided a strong case for technology-based student learning in the 21st century (Ellis-Monaghan, 2010; Vyrostek, 2009). Teachers inspire and lead students to discover their passions through creating the right cognitive conditions via multiple modes of media (Kivunja, 2015). Teachers may use student-centered instruction to cultivate active learning in the classroom by placing students at the center of instruction while emphasizing peer interactions (Armbruster et al., 2009). This method shifts the focus from what the teacher provides to what the student receives through methods that attain results (Peabody, 2011).

According to Bennett (2010), teachers need to include student engagement through open discussions within their classrooms to ensure proper learning—and if this is not naturally happening, it becomes the teacher's role to aid in this process. Teachers should change the way they deliver knowledge and skills in the classroom due to students' increased interaction with

media (Redmond, 2015). Students have altered their developmental characteristics due to this constant use of technology; therefore, teachers must incorporate technology in various ways in the classroom. To achieve success, teachers must empower students with modern tools, such as technology (ACT, 2012).

Teachers may use the FCM to incorporate both a student-centered approach to instruction and technology in the classroom (Birbal & Hewitt-Bradshaw, 2016; Hao & Lee, 2016). Rooted in a constructivist approach to learning, teachers use the FCM to collaborate and self-regulate by incorporating critical thinking in the classroom (Birbal & Hewitt-Bradshaw, 2016; Hao & Lee, 2016; Kurt, 2017; Shaffer, 2016). This model brings a shift in paradigm from the teacher-centered approach to a student-centered approach (Kong, 2014; Lai & Hwang, 2016).

In this review, I first focused on the expected 21st century skills from students. Students need essential 21st century skills to obtain success in an increasingly globalized workforce with workers dependent on technological innovations and knowledge (Alismail & McGuire, 2015; DiBenedetto & Myers, 2016; Kivunja, 2015). Next, I presented the attributes of an innovative classroom. Based on the literature review, the attributes of an innovative classroom include innovative instructional approaches that are engaging and motivating for students (Kivunja, 2015) and the incorporation of technological innovations to maximize learning and to ensure that 21st century skills are enhanced (Chan, Borja, Welch, & Batiuk, 2016; Delgado, Wardlow, McKnight, & O'Malley, 2015). Some of the most innovative instructional approaches include the Bring Your Own Device (BYOD; Delgado et al., 2015; Song & Kong, 2017), blended classrooms (Porter & Graham, 2016), and flipped classrooms (Birbal & Hewitt-Bradshaw, 2016). The third section involved a discussion of the FCM. Teachers have implemented the FCM to promote student learning and student engagement (Birbal & Hewitt-Bradshaw, 2016).

Teachers use the FCM to engage students in active learning and create meaningful teacher-to-student and student-to-student interactions (Forsey, Low, & Glance, 2013; Pluta, Richards, & Mutnick, 2013; Teo, Tan, Yan, Teo, & Yeo, 2014).

Essential 21st Century Skills

Preparing students with the specific skills to be literate for the 21st century leads to competitive advantages after graduation. Upon entering the workforce, students must be able to collect information comfortably without error, critically assess that information, and systematically apply the gained knowledge to real-world situations (AASL, 2009; Kivunja, 2015). To help individuals acquire these skills to reform the workforce, teachers, experts, and business leaders established the Partnership for 21st Century Learning (P21, 2016) to highlight the essential skills of the 21st century. The developers of P21 enabled teachers with a framework that defined and provided clarity to the support systems, knowledge, skill sets, and capabilities that aided student success in the 21st century. This framework takes the *3 R's* (i.e., reading, writing, and arithmetic; Alismail & McGuire, 2015) and adds the *4 C's* (i.e., critical thinking, communication, collaboration, and creativity; P21, 2016).

The developers of P21 (2016) attempted to fuse critical thinking, social skills, and core knowledge into U.S. classrooms. Teachers must implement 21st century curriculums to enable students with the ability to face the multifaceted demands of society. Teachers and administrators may use the P21 framework to split 21st century skills into three main categories: learning and innovation skills; information, media, and technology skills; and life and career skills

Learning and innovation skills. According to P21 (2016), learning and innovation skills "are what separate students who are prepared for increasingly complex life and work

environments in today's world and those who are not. These skills include creativity and innovation, critical thinking and problem solving, communication, and collaboration" (para. 5). Students must use critical thinking to necessitate their use of higher order thinking, which increases problem-solving capabilities (Alismail & McGuire, 2015). When students interpret, analyze, synthesize, summarize, and evaluate information, they are more likely than those who do not use these skills to succeed in the 21st century workplace.

When teachers give students the time needed to immerse themselves in problem-solving activities and foster cooperative learning, they encourage students to become more apt to transfer these skills and conquer issues faced in real-world situations (DiBenedetto & Myers, 2016). Students who become accustomed to this type of learning feel appreciated in the workplace. These students also show a greater probability of receiving employment compared to those who never (or rarely) practiced collaborative and critical thinking skills in real-life experiences.

Information, media, and technology skills. The second category in the P21 (2016) framework for 21st century learning involves information, media, and technology skills. According to P21, citizens not only need critical thinking skills important for the 21st century, but they also need information literacy, media literacy, and ICT (information, communications, and technology) literacy skills. Properly trained employees of the 21st century must evaluate and incorporate information into experiences, notice the need for information, and critically investigate it through technology (Black, 2009). Teachers should no longer require students to simply access and memorize information. Society stresses the importance for students to multitask through a wide range of skills, mirroring real-world experiences (Kivunja, 2015). The Association of College and Research Libraries (ACRL, 2000) purported that individuals who have strong information literacy skills often: (a) determine the need, (b) access information

efficiently and effectively, (c) evaluate sources critically, (d) incorporate gained knowledge into their knowledge base, (e) use the information for a purpose, and (f) understand the ethical and legal issues surrounding information.

According to Kivunja (2015), the 21st century presents a wide range of information over multiple modalities that drive diversification through digital technology, providing a bridge between school and the community. For teachers to immerse technology in their classrooms, they must invest in the process, creating an active environment facilitating technology as one of the essential instruments of education (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012; Ruggiero & Mong, 2015). While teachers may use technology, they must know that using technology alone will not refine in-class instruction (Ertmer, 2005; Ruggiero & Mong, 2015). Teachers must link technology with real-world experiences to be beneficial within the class (Pierson, 2001; Ruggiero & Mong, 2015; Stobaugh & Tassell, 2011). Teachers must ensure that technology strengthens the classroom instead of weakening instruction (Ellis-Monaghan, 2010). Students should commit to their learning process, while fully utilizing and understanding the importance of technology (Veeramani, Madhugiri, & Chand, 2015). Students and teachers need technological investment and adaptation of new technical skills.

The rapid expansion of digital technology profoundly changed the what, when, how, and where of learning, which affected educational institutions through modern challenges. Teachers, students, parents, and administrators must reconsider how technology supports each facet of learning (Kivunja, 2015). However, students may fall short, due to the abundance of information presented via technology, of generating 21st century skills needed to succeed in society.

Life and career skills. The final category in the P21 (2016) framework for 21st century learning includes life and career skills. Teachers must teach students helpful skills for their

future careers (Alismail & McGuire, 2015). For the 21st century, the life skills that affect student achievement include self-motivation, self-monitoring, and the ability to set goals (Black, 2009). Students must demonstrate current skills for teachers to provide a reciprocal approach to student achievement (Alismail & McGuire, 2015). Future leaders and citizens need the talent, information, and outlook that prepare them for success in the 21st century workplace (DiBenedetto & Myers, 2016). Teachers may combine skill sets to assist students in mastering knowledge and understanding core competencies while allowing the hands-on use of needed devices imperative to successful productivity (Alismail & McGuire, 2015; Kivunja, 2015; P21, 2016). Teachers impart these skills to prepare students to face the global encounters of the 21st century (ACT, 2010; DiBenedetto & Myers, 2016). When schools do not prepare students with necessary skills, the students find themselves at a considerable competitive handicap in a time where "such competition is more critical because it is in the global village, rather than just their own local village" (Kivunja, 2015, p. 177). Teachers must blend knowledge, innovation skills, critical thinking, and real-life experiences in the context of academia in their 21st century curriculum (Alismail & McGuire, 2015). When teachers use their curriculum to connect real-world experiences, collaboration, motivation, and understanding, they prepare students for the future.

Nationwide research showed student achievement encompassed more layers and variables compared to those found in the P21 framework (Bulach, Malone, & Castleman, 1995; Ferla, Valcke, & Schuyten, 2010; Hejazi, Shahraray, Farsinejad, & Asgary, 2009; Sikhwari, 2007; Weiser & Riggio, 2010; Yuksel & Geban, 2016). Teachers can nurture an active learning style by answering individual learning difficulties to help identify key tasks to cultivating successful performances from students (Kamarainen et al., 2013). However, researchers showed

that three additional characteristics affected student achievement: motivation to learn, self-efficacy, and anxiety (Sartawi, Alsawaie, Dodeen, Alghazo, & Tibi, 2012; Yavuz-Mumcu & Cansiz-Aktas, 2015).

Motivation to learn. Researchers indicated an increasing focus on understanding motivation regarding student engagement (Chiang & Lin, 2014; Elliot & Church, 1997; Metallidou & Vlachou, 2010). Intrinsic motivation increases when students make personal relevance and connections, enabling students to perform at their highest levels of engagement (Cole, 2010; Shuptrine, 2013). Students become ambitious and willing to attempt difficult tasks when they feel they can do so successfully (Bandura, 1986; Covington, 1984; Gasco & Villarroel, 2013; Weiner, 1985).

Educational researchers indicated a correlation between student motivation and academic achievement (Ma & Kishor, 1997; Rabab'h & Veloo, 2015). When students participate in and are required to use higher-level skills to obtain answers and conclusions, they gain attention and motivation (Shernoff, Csikszentmihalyi, Schneider, & Steele, 2003; Shuptrine, 2013). Motivation levels rise when students form partnerships with the community outside of the classroom (Shuptrine, 2013). Without motivation, student achievement suffers and academic learning may not occur (Rabab'h & Veloo, 2015; Tella, 2007).

Self-efficacy. Motivated students need self-efficacy to positively affect their academic performances (Diseth, Danielson, & Samdal, 2012; Parker et al., 2014; Stankov, Lee, & Hogan, 2012). Bandura (1997) stated that perceived self-efficacy is the "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). Additional information from the literature adds the following components to his definition: (a) the ability to perform at a particular level on a learning task (Bernacki & Nokes-Malach, 2015),

(b) an increase in one's motivation (Ramdass & Zimmerman, 2008), the capacity to use effort and persistence (Bandura, 1997; Cetin-Dindar, 2016), (c) the way one depicts confidence (Parker et al., 2014), (d) the capacity to organize necessary tasks successfully (Bandura, 1997; Ramdass & Zimmerman, 2008; Yavuz-Mumcu & Cansiz-Aktas, 2015), and (e) the capacity to perform in varied domains (Valentine, DuBois, & Cooper, 2004).

Learners participate in tasks when they have higher levels of self-efficacy (Bernacki & Nokes-Malach, 2015; Pajares & Miller, 1994). Students with higher levels of self-efficacy often set challenging goals and maintain strong commitments to achieve their aspirations (Bernacki & Nokes-Malach, 2015). Students assess their performance as they begin to solve a problem; they experience decreased efficacy after unsuccessful attempts and increased efficacy after successful attempts. Students can develop self-efficacy to link their awareness of capabilities with effective actions, thereby ensuring task completion (Parker et al., 2014). Students behave differently based on the intensity of efficacy, as prior researchers found that self-efficacy enhanced and predicted students' cognitive and metacognitive behaviors (Bernacki & Nokes-Malach, 2015), as shown through conviction in students' abilities to discover and execute behaviors (DiBenedetto & Myers, 2016).

Students' self-efficacy increases when teachers relate class work to real-life situations by incorporating an active classroom, such as in the FCM (Cetin-Dindar, 2016; Kirbulut, 2014). Researchers showed that the dynamic part of efficacy in the self-regulated learning cycle altered in response to the insight of the specific task (Bernacki & Nokes-Malach, 2015) and strengthened with substantial growth (Ramdass & Zimmerman, 2008). Hence, teachers must scrutinize self-efficacy changes and its effects on future learning, as teachers use this change to

move students into modifying their approach, shifting from seeking help into a problem-solving mode (Bernacki & Nokes-Malach, 2015).

Teachers who monitor student self-efficacy in response to learning provide higher levels of education (Ramdass & Zimmerman, 2008). Students need self-efficacy to exert effort and think critically (Cetin-Dindar, 2016). Teachers must remind students of prior successes and ensure recognition of their problem-solving skills development, as this development raises self-efficacy levels and improves future learning outcomes (Bandura, 1997; Bernacki & Nokes-Malach, 2015). Teachers and students alike enjoy a learning environment, such as the FCM, where students are active and feel effective (Yavuz-Mumcu & Cansiz-Aktas, 2015).

Reduction of anxiety. Reducing anxiety improves efficacy, which affects achievement (Peters, 2013). Two categories classify anxiety: state anxiety and trait anxiety (Yuksel & Geban, 2016). State anxiety derives from a feeling of threat in a circumstance, causing a feeling of danger within an individual, viewed as a momentary emotional state, which can include the feelings of nervousness and concern. Trait anxiety looks at an individual's tendencies toward displaying an anxiety that is characteristic of one's nature.

According to research, students establish classroom confidence levels early and have difficulty altering these levels once their beliefs transpire (Bandura, 1997; Buss, 2010). However, researchers claim that perceptions often decline throughout a child's educational experience, becoming adverse at the secondary level (Ma & Kishor, 1997; Yavuz-Mumcu & Cansiz-Aktas, 2015) and increasing with age (Devine, Fawcett, Szucs, & Dowker, 2012; Krinzinger, Kaufmann, & Willmes, 2009; Yavuz-Mumcu & Cansiz-Aktas, 2015). Prior knowledge, experience, and one's ability level from the gained experiences form the basis for performance (Yavuz-Mumcu & Cansiz-Aktas, 2015). If gaps exist within these background

experiences or shortfalls in the student's skills, even with obtaining a full understanding, the student may not work to his or her full potential. In turn, students who hold back on their learning do not strive to learn the advanced topics; therefore, they often feel discouraged and suffer from decreasing confidence levels.

Researchers showed a correlation between achievement and anxiety levels (Cleary & Chen, 2009; Hoffman, 2010; Usher, 2008; Williams & Williams, 2010; Yavuz-Mumcu & Cansiz-Aktas, 2015). Studies found that students experience less apprehension when an experience stays positive (Wang, 2012; Yavuz-Mumcu & Cansiz-Aktas, 2015). Students with anxiety may halt attempts at specific problems, thereby hampering the potential achievement level and leading to failure in class. When a student develops a positive attitude toward an academic subject, there are permanent modifications in behavior (Rabab'h & Veloo, 2015). The FCM may help students with their anxiety, and therefore their achievement, as research showed that when students took their second consecutive flipped math course, their math anxiety decreased significantly (Dove & Dove, 2017).

Attributes of an Innovative Classroom

The United States is at a point where competitiveness may become vulnerable if teachers do not prepare the workforce to acquire essential 21st century skills (National Academy of Sciences, 2010). Over the last two decades, research has accounted for a shortage of students prepared with the necessary skills to succeed in the 21st century workforce (Parker et al., 2014). With two-thirds of high school graduates lacking the skills required for college, industry leaders fear that students are not adequately prepared to meet challenges and be productive in the workforce (DiBenedetto & Myers, 2016; Shuptrine, 2013). In this section, I discuss the

attributes of an innovative classroom to address the need for graduates to meet the demands of the workforce.

Innovative instructional approaches. Students in the 21st century need teachers to provide a climate that relates meticulously to their method of learning, which includes being engaging and motivating (Kivunja, 2015). Teachers who provide the knowledge on how to become "self-regulated and self-monitoring learners" allow their students to "take initiative" and "keep track of the quality of their own learning" (p. 171). Student perceptions of classroom climate also affect student achievement and motivation (Cheema & Kitsantas, 2014; Ma & Williams, 2004; McMahon, Wernsman, & Rose, 2009).

Teachers use technology to encourage students to investigate the world by virtually bringing the world into the classroom (P21, 2003). When teachers implement technology properly, they use an array of activities, learning materials, and technological skills (Long et al., 2016b). While technology virtually takes students outside of the classroom, what happens within the classroom remains pertinent as well.

Teachers control the type of environment in which the students learn but cannot change demographics within their classrooms. Traditionally, teachers have taught by repetition; they ask students to repeat verbally or write content over and over (Alismail & McGuire, 2015). Students find this model less interesting. Even with research showing that traditional classrooms no longer serve as the best method of classroom delivery, many still deliver using this model, which takes away from students experiencing higher levels of engagement in their learning (Shuptrine, 2013). When teachers show an elevated degree of concern and liability for their classrooms, their students achieve higher levels of academic success (Cheema & Kitsantas, 2014).

The National Research Council (1996) emphasized the significance of attracting learners into genuine inquiry through hands-on experience. Teachers must use active learning to empower students to acquire independently the knowledge and skills needed, instead of rote memorization for testing (Alismail & McGuire, 2015). Teachers must envision high expectations of every student, ensuring precision, accuracy, and high quality knowledge occurs (Kivunja, 2015). In a well-planned active learning environment, students construct the information and generate meaning and value to what they are learning through collaboration, just as they do in real-world scenarios (Alismail & McGuire, 2015). Teachers must establish a classroom culture that enables risk-taking and the vulnerability of being wrong (Van Sickle, 2016).

When the teacher associates classroom content with reality, students learn essential 21st century skills, such as collaborative learning, problem-solving, and critical thinking (Alismail & McGuire, 2015; Herrington & Kervin, 2007). Teachers who prepare students for workforce improvement create a climate that requires students to search for the answers to questions and use curiosity as a driving force to find a deeper meaning to problems—they are no longer simply revealing fragments of knowledge and information (Kivunja, 2015). To implement an active classroom successfully, teachers should have (a) the confidence and ability to assume a facilitative role (Ertmer & Simons, 2006; Hmelo-Silver & Barrows, 2006); (b) confidence in their own knowledge (Kolodner et al., 2003); (c) the skills to shift students into self-directing roles, holding the students responsible for their learning (Glazewski & Ertmer, 2010); (d) the determination and willingness to restructure assessments, which can effectively depict growth in students' problem-solving skills and growth of knowledge (Grant, 2011); (e) the desire to engross students in subjects in which the teachers, themselves, may not have much familiarity;

and (f) the support network with their administration, the student's family, and the local community, including businesses and different organizations (Anderson-Butcher et al., 2010; Shuptrine, 2013).

Current innovations to consider. Because technology's place in society continues to advance, and because employers and organizations, such as the P21 partnership, advocate its worth, teachers should intentionally incorporate technology into the curriculum to enhance students' educational experiences (Chan et al., 2016). Current demands include diffusing technology into many aspects of life, understanding the increasing importance of a "knowledge-based economy," and acknowledging that technology facilitates globalization (Marín et al., 2016, p. 51). With technology, face-to-face teaching is no longer the only method to teach (Delgado et al., 2015).

School district leaders must decide ways in which to move appropriately toward technology implementation as teachers transition from tangible classroom resources (textbooks and workbooks) to incorporation of electronic resources (Kuzo, 2015). Researchers have shown that teachers' use of quality resources is vital to positive learning of students (Herro, 2015; Preston et al., 2016). When teachers have access to modern resources, the implementation of pedagogical strategies is more effective (Herro, 2015). Access to resources is particularly important in emerging pedagogical techniques and technology-based instruction for teachers to be effective instructors (Herro, 2015; Herro, Kiger, & Owens, 2013). In addition to physical resources, cognitive and emotional resources are also essential in the effective classroom management of teachers, underscoring the importance of having sufficient knowledge to implement pedagogical strategies and practices (Seiz, Voss, & Kunter, 2015).

Bring your own device (BYOD). In the BYOD instructional approach, students bring their own devices to class for educational purposes (Delgado et al., 2015; Song & Kong, 2017). When students provide their own devices, it keeps the technological cost within the school district down (Cardoza & Tunks, 2014; Delgado et al., 2015; Parsons & Adhikari, 2016). Researchers studied BYOD and found that it aided in the shift toward student-centered learning that could positively affect overall learning (Cardoza & Tunks, 2014; Parsons & Adhikari, 2016).

Infusing various types of technology in the classroom may increase skill sets and prepare students for the 21st century workplace. Today's students want global connection, education in groups, and to use innovative tools, while remaining self-reliant with their learning (Cardoza & Tunks, 2014). In BYOD situations, students come to class familiar with their devices and will always have access to them (Delgado et al., 2015). The BYOD process is simple, but teachers may struggle to implement the process. Administrators who use BYOD can bring challenges to teachers through change management and student control (Parsons & Adhikari, 2016). Cardoza and Tunks (2014) suggested, "Teachers who lack in knowledge either in the content or in the actual use of technology often have difficulty with integrating technology in the classroom" (p. 296). In addition to teachers struggling with BYOD, school administrators must ensure responsible use, appropriate amounts of bandwidth, WIFI, and theft prevention (Kiger & Herro, 2015).

Blended classroom. Blended learning is a hybrid cross between traditional brick-and-mortar teaching and online learning (Delgado et al., 2015). Teachers use blended learning to take advantage of current social networking and allow the expansion of classroom facilities while maximizing technology resources (Jenkins & Crawford, 2016). School administration

uses the blended classroom to increase learner and faculty satisfaction due to convenience and cost effectiveness (Porter & Graham, 2016).

When teachers blend conventional classrooms with technology to create an innovative environment, teachers can organize their teaching more efficiently (Wichadeeq, 2017). Teachers use this organization to help remove time deficiencies in the classroom and contribute positively to learners' performances (Jou, Lin, & Wu, 2016; Wichadeeq, 2017). Teachers must encourage students in the blended classrooms to set goals, accept challenging work, collaborate, and fully support their peers (Graves, 2008).

Flipped classroom. Teachers use the FCM to reform student learning, promote student engagement, and improve instruction (Birbal & Hewitt-Bradshaw, 2016). The FCM engages students in active learning and creates teacher-to-student and student-to-student interactions (Forsey et al., 2013; Pluta et al., 2013; Teo et al., 2014). Given that I focused on the FCM, I presented more details about this instructional method in the next section.

The Flipped Classroom Model (FCM)

Teachers use the FCM as one option that may reform student learning, promote student engagement, and improve overall instruction (Birbal & Hewitt-Bradshaw, 2016). Teachers use the FCM to ask students to take a stake in their learning by obtaining information outside the class and displaying the understanding of the material within the classroom (Long et al., 2016b). Researchers referred to the FCM as a method of learning that attracted students to use their knowledge through higher order thinking instead of direct instruction (Davies et al., 2013; Flumerfelt & Green, 2013; Lai & Hwang, 2016).

Teachers who use the FCM split the learning experience into two phases. The first phase of the FCM involves exposing the student to the initial learning content outside the classroom

before class using self-directed teacher-provided videos and allowing the students to control the pace at which they review the videos (Long et al., 2016b; Strayer, 2012). Teachers use this phase to allow students, independent of the teacher, the opportunity to work at their speed in a non-threatening environment. In the FCM, students prepare themselves for the collaboration and hands-on experiences (Birbal & Hewitt-Bradshaw, 2016), which tailors to their individual learning needs (Eichler & Peeples, 2016). Teachers use the first phase to allow students to build conceptual understanding of the material at a time that fits into their schedule (Long et al., 2016b). Not only can teachers use videos to instruct new lessons, teachers also can use these videos to give learners the ability to review previous lectures (Griffin, Mitchell, & Thompson, 2009; Long et al., 2016b) and add supplementary materials for those who need to strengthen specific skills (McGarr, 2009; Long et al., 2016b). Evans (2014) noted that teachers used videos to clarify challenging ideas. Students may watch challenging concepts over many times to enhance their skills through better comprehension (Long et al., 2016b), while supplementing problem-solving skills (Kay & Kletskin, 2012; Long et al., 2016b; Vajoczki, Watt, Marquis, & Holshausen, 2010).

According to Clark (2015), the FCM provides a better use of class time compared to the traditional approach to teaching. When students view material outside of the classroom, added time within the classroom for one-on-one interactions appears to build trust and give students the support they need (Ellis-Monaghan, 2010; Vyrostek, 2009). Teachers often include digital aspects outside of the classroom to allow in-class time with a teacher present to apply, analyze, evaluate, and create (Long et al., 2016b; Ng, 2014). When students perform higher-level tasks with their teachers, they feel a sense of empowerment, as they are now determining relevant information, relating it to real-life experiences, and sharing it with their peers (Kivunja, 2015).

When teachers first consider the idea of the FCM, they may implement the pre-class phase in several different ways (Long et al., 2016b; Strayer, 2012). Some teachers create elaborate videos, while others screen record with the lessons with audio. Teachers archive electronic lectures to allow students to clarify concepts, see lectures they missed, review for assessments, or prepare for future courses with prerequisites at any time they choose; however, teachers do not actively use the FCM approach if they only screen record the lessons taught and do not use an active in-class approach. Teachers use pre-class videos to allow students to learn through a self-controlled approach with the ability to stop, rewind, and watch lectures multiple times for full understanding (Fautch, 2015; Hung, 2015; Schultz, Duffield, Rasmussen, & Wageman, 2014). Teachers must ensure that the pre-class videos remain short and interesting to captivate the student's attention (Long et al., 2016a, 2016b). According to Ferrer and García-Barrera (2014**),** when preparing the videos, teachers must consider three guiding principles: (a) the informal language principle, where teachers make use of first and second person in the videos as opposed to a more formal language; (b) the guide principal, where teachers incorporate characters on the screen that fulfill a coaching role and promote learning; and (c) the author visibility principle, where the author shows personal involvement in the narration.

Teachers use the pre-class videos to bring a student-centered approach to the material. Online videos present content via multimodal learning experiences, reaching students' various learning styles to keep them focused and motivated (Pellerin & Montes, 2012). Teachers who provide access to a wide range of multimodal experiences accommodate learners' learning styles more than the conventional face-to-face teaching approach. FCM teachers use pre-class videos to bring time into the classroom, providing the opportunity for an active and collaborative experience that includes problem-solving, laboratory experiments, field trips, real-world

scenarios, and creation (Birbal & Hewitt-Bradshaw, 2016; Davies et al., 2013; Long et al., 2016b).

The second phase of a FCM occurs during the in-class time (Long et al., 2016b; Strayer, 2012). Vygotsky's (1978) sociocultural theory states that learning not only takes place in the student's mind but also involves interaction within the classroom. Constructing knowledge and applying learning within a social context promotes dialogic interaction and enables the negotiation of meaning and knowledge building through collaboration (Pellerin & Montes, 2012). Research showed this partnership for an active approach allows students to practice their 21st century skills. While students still need support, the learning becomes progressive and stresses the significance of blending learning across real-world applications from various perspectives, allowing each student to build his or her skills and scaffold knowledge across different levels of experience (Alismail & McGuire, 2015; Black, 2009; Pellerin & Montes, 2012). The teachers must grasp the importance of collaborative learning and individualized assessments; thereby changing their original classroom assignments, as having students view material outside of the class itself does not create an active classroom or a flipped approach to learning (Birbal & Hewitt-Bradshaw, 2016). Students use the tools provided to discover and exchange what they used to learn by rote memorization without a full understanding of the meaning; they now have a stake in establishing relevant information and feel confident in sharing this information with their classmates (Kivunja, 2015).

The benefits of FCM. Students in the FCM classroom achieve learning objectives better as compared to didactic teaching (McLaughlin et al., 2013; Pellerin & Montes, 2012; Sajid et al., 2016; Veeramani et al., 2015). Teachers use the FCM to allow students multiple ways to relate to the subject matter (Gross, Pietri, Anderson, Moyano-Camihort, & Graham, 2015). This fact

often precedes increased independent learning skills (Sajid et al., 2016), which improve student outcomes (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014; Gross et al., 2015).

The speed of the teacher is no longer a factor in the FCM, which is another benefit for students. Students in the FCM take responsibility for their learning, and the speed of which they learn, by accessing content at a time and location before class that works for them (Sajid et al., 2016), while often on their own devices (Gouia & Gunn, 2016). According to Long et al. (2016b), 78% of students in their study preferred learning through video technology. Students, such as athletes or those who are absent often, appreciate this flexibility (Herreid & Schiller, 2013).

Another student benefit of the FCM is enhanced student engagement (Gross et al., 2015). By keeping students active in the FCM, interaction increases while fewer distractions occur (Gross et al., 2015; Sajid et al., 2016). Research showed that the FCM increased student-teacher synergy, which led to a valuable education (Moffett, 2015). When students have a sense of appreciation and act involved in class, they feel empowered and can build a protected sense of security and identity (Black, 2009). The active classroom may also help eliminate cramming and better prepare students for class (Gross et al., 2015) through boosting retention and use of obtained information (Rotellar & Cain, 2016; Sajid et al., 2016).

Teachers benefit from the FCM also. Gouia and Gunn (2016) noted that students in a FCM interacted with each other, showed motivation, shared knowledge, and worked together to understand concepts, which gave the teacher added time to move throughout the classroom, helping others at the right moment. The additional time allows the teacher to clarify misconceptions and provide students who fear speaking up in front of a large group to feel a level of comfort when speaking one-on-one. In Gouia and Gunn's (2016) study, the "struggling

learners" needed the most help, the "middle level students" benefitted from the higher achievers yet helped the lower achievers, and the "advanced students" completed higher-level problems (p. 8). In Pellerin and Montes' (2012) study, teachers stated that combining online videos with face-to-face learning made the "material come alive" and brought out "reality to the material that you can't quite get in a regular setting… [making] it more exciting" (p. 14) for both the teacher and the students. Lastly, teachers may now reflect on their teaching through watching their videos, allowing them to become a thorough critique of their techniques (Barr, 2013).

The challenges of implementing a FCM. There are some criticisms against the use of the FCM (Choe & Seong, 2016; Ramírez, Hinojosa, & Rodríguez, 2014; Rasal, 2015). One of the teachers' key concerns is whether the learners will complete the pre-class work to understand the applicable classroom concepts (Gouia & Gunn, 2016). Teachers may struggle to convince students of the importance for preparing the FCM, which may represent a substantial barrier toward learner-centered instruction (Bishop, Caston, & King, 2014). Candid dialogue with students regarding the importance of instruction and learning may aid with this problem (Van Sickle, 2016). Teachers must exert effort to influence students to appreciate education; therefore, teachers must hold resilient teaching beliefs (Lai & Hwang, 2016). However, finding a way to inspire students to be self-regulated—a process that enhances students' motivation to learn and to reflect on their learning process (Michalsky & Schechter, 2013)—is vital (Sun, Wu, & Lee, 2016).

When implementing the FCM, teachers must use a significant amount of time to produce instructional videos with valuable support (Rasal, 2015; Schultz et al., 2014). The time it takes a teacher to prepare a new classroom delivery may create reluctance in using the FCM (Brenner & Brill, 2016). Some teachers may not feel confident in their abilities to create their own videos

nor find the time to get their videos together before the start of class; therefore, a possible alternative rests in using others people's materials (Long et al., 2016a). For some teachers, the challenge of using technology to create the videos is taxing (Sajid et al., 2016). However, teachers must remember that using someone else's videos may not match their class directly, which can lead to confusion (Brenner & Brill, 2016).

Planning for an active classroom approach is not easy. With teachers no longer standing in front of the classroom but interacting with students, they shift their classrooms into student-centered environments by including collaborative projects to add a deeper level of understanding (Breslow, 2010; Long et al., 2016a). Unfortunately, this change causes added stress on a teacher when certain students find technology and collaboration a distraction (Long et al., 2016a), causing these students to have a longer adjustment period to their new educational settings (Birbal & Hewitt-Bradshaw, 2016; Strayer, 2012). However, no aspect of education is more vital to students' ability to learn compared to the value of their teacher (Ertmer et al., 2014). Teachers who possess didactic techniques, paired with a solid operational understanding of their subject area, advance learning and teaching successfully. Teachers must facilitate readily available classrooms that are active and stimulating.

Ensuring teachers move past their hesitations is critical in the 21st century. When the classroom successfully converts to an active learning environment, where cognitive learning skills integrate into the curriculum, students find themselves equipped to acquire a deeper understanding and are more apt to attempt solving complex problems (Alismail & McGuire, 2015). According to Yavuz-Mumcu and Cansiz-Aktas (2015), the proper learning environment creates an environment where all students attain success.

Students also face several challenges with the FCM. One of the main challenges they encounter is failing to watch videos before class to gain a full comprehension of subject matter (Mason, Shuman, & Cook, 2013). Students' learning is also at risk of disruption due to technological problems, as the FCM is heavily reliant on videos (Ramírez et al., 2014). Students who feel a lack of self-regulation may develop feelings of frustration that lead toward negative feelings of the course and teacher (Van Sickle, 2016). Students face another challenge with note taking, as the FCM has students taking notes before class without the teacher's presence, so the need to understand how to take good notes is imperative (Butzler, 2016). Self-assessment and reflection of learning benefits the students; however, students may not automatically perform these tasks and struggle through developing these skills, relying on teachers to give the guidance needed to implement.

Accessibility may also be a challenge for some students. According to research, only 57% of children ages 3 to 17 use the Internet at home, and 79% have access to computers (Child Trends DataBank, 2015). These statistics suggest that the "digital divide may influence students' overall comfort level with and likely achievement in a flipped learning environment" (Jensen, Kummer, & Godoy, 2015, p. 10).

Another criticism against the use of FCM pertains to the failure to accommodate different learning styles of students, given that FCM emphasizes learning by spending hours on a computer (Rasal, 2015). According to Greenfield (2009), technology exposure has caused critical thinking and analysis to decline. In the debate over whether schools should use media technology versus classroom discussion and textbook reading, Rasal (2015) found that students needed a "balanced media diet" for a good education (p. 360). Each learning style has pros and cons regarding development, and teachers should not focus solely on one medium.

Effectiveness of the FCM. Researchers have shown the FCM to be an effective approach to active learning (Eichler & Peeples, 2016; McGivney-Burelle & Fei, 2013; Sajid et al., 2016). The FCM shows statistically significant academic improvements among graduate level students based on their grades, level of satisfaction, and overall educational experience (Sajid et al., 2016). At the undergraduate level, McGivney-Burelle and Fei (2013) flipped calculus and found that students received higher grades compared to a traditional class. Eichler and Peeples (2016) flipped a large enrollment general chemistry course; when compared to the non-flipped course, the flipped class had higher average GPAs, equating to 2.80 compared to 2.92, respectively. In a secondary math classroom, Clark (2015) found that while there was no statistical difference between the FCM and a traditional approach to teaching, the FCM did have a positive influence on student engagement. Jensen et al. (2015) found that standard and flipped formats of the same class employing active learning did not have significantly different student outcomes, thus pointing toward the active-learning element of the flipped class as the key to student improvement. Other researchers presented challenges with comprehending the true value of the FCM, as these results were attained from introductory and distance-education courses (Halverson, Graham, Spring, Drysdale, & Henrie, 2014). However, Gross et al. (2015) contended that much evidence on the effectiveness of the FCM remains indirect.

With an innovative approach to learning, teachers must facilitate students and allow skill application to stimulate content discovery, develop knowledge creation, and build communication skills (Birbal & Hewitt-Bradshaw, 2016). When assessed, teachers can proficiently gauge diverse groups' 21st century skills. Fully implementing an innovative classroom approach is imperative to successful outcomes; however, while teachers often attempt new innovative techniques within the classroom, research shows that they terminate or modify

the strategy, which leads to underdeveloped student skillsets (Khatri et al., 2016). Understanding teachers' confidence levels and their hesitations in bringing different learning methods inside their classroom may help other teachers understand the implementation of innovative classroom techniques and aid in an easier transition to a full execution of the selected innovation, in this case, the FCM.

Summary

The theoretical framework guiding this study was Rogers' (2003) DOI theory, which I used to look at the processes involved in the spread of innovation or an idea within a specific social system. This study, viewed through the lens of Rogers' theory, posited that teachers looked for advantages, determined if the perceived intensity was worth the change, and scaffolded previous personal experiences of their own when implementing innovations, such as the FCM. The FCM represents one blueprint that teachers may use to integrate content with technology to revise instructional tactics and increase student relations for higher classroom achievement (Birbal & Hewitt-Bradshaw, 2016; Enfield, 2013; Vaughan, 2014). The FCM engages students in active learning and creates meaningful teacher-to-student and student-to-student interactions (Forsey et al., 2013; Pluta et al., 2013; Teo et al., 2014). Teachers must apply strategic planning, vast readjustment of pedagogic lectures, and steadfast monitoring to implement the FCM (Birbal & Hewitt-Bradshaw, 2016; Della Ratta, 2015).

The unknown factor was whether the specific process of using the FCM was worth the effort and what challenges existed that interfered with teachers wanting to use the FCM. Existing literature shows positive student perceptions of a flipped environment (Ashby, Sadera, & McNary, 2011; Birbal & Hewitt-Bradshaw, 2016; Bruff, Fisher, McEwen, & Smith, 2013; Clark, 2015; Du & Wu, 2013; Enfield, 2013; Long et al., 2016b; Tawfik & Lilly, 2015; Wanner

& Palmer, 2015) and positive teacher perceptions (Long et al., 2016a; Ruggiero & Mong, 2015; Wanner & Palmer, 2015). One gap in the literature was that it was unclear why teachers' often abandoned implementation of a FCM before fully adopting the innovation in their classrooms. Another gap was the lack of perspective from the secondary teachers regarding the FCM. My research differed from past studies because I adopted a transcendental phenomenological study designed to describe secondary teachers' experiences implementing a secondary FCM in the United States.

CHAPTER THREE: METHODS

Overview

Research was needed to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. For this study, the FCM was defined as an instructional strategy, wherein students worked at their own paces to watch online video lectures, uploaded by the teacher prior to the classroom sessions, and used in-class time to collaborate in significant learning activities, problem-solving, and group discussions (Birbal & Hewitt-Bradshaw, 2016; Fautch, 2015). This research led to related studies that could be a resource for teachers preparing students for society's demands post-graduation, which was needed in some classrooms to address low achievement (Tawfik & Lilly, 2015).

For this study, I took a transcendental phenomenological study approach using questionnaires, interviews, and a virtual focus group to collect data. Using Rogers' (2003) DOI theory as a framework, the purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary successful flipped classroom model (FCM) in the United States. I purposefully selected 12 secondary FCM teachers as participants for my study. In this chapter, I depicted the research by providing a comprehensive description of the design, research questions, setting, participants involved, procedures, and methods of data collection. I also looked at my role in the research. I then provided a description on how I analyzed the data, discussed the trustworthiness of my work, and detailed out the ethical considerations that took place.

Design

In seeking to describe secondary teachers' perspectives of their lived experiences in the implementation of the FCM, my goal was to understand the collective practices of FCM

teachers. With this goal in mind, I used a qualitative research design. Qualitative research is an extensive methodology that "consists of a set of interpretive, material practices that make the world visible" (Denzin & Lincoln, 2011, p. 3). Qualitative research involves representations as opposed to numbers. Instead of how many, qualitative research focuses on the what, why, and how (Moustakas, 1994; Ritchie, Lewis, Nicholls, & Ormston, 2014). Furthermore, qualitative research allows for collection of detailed information from a smaller group of people, allowing for an increased depth of understanding of the cases and situations studied (Patton, 2015).

There are various types of qualitative research. I used a transcendental phenomenological study approach to describe secondary teachers' experiences implementing a secondary FCM in the United States. The purpose of my study was to identify the shared, lived experiences of a group of secondary teachers who used the FCM, making the phenomenological approach appropriate (Creswell, 2013; Moustakas, 1994). Phenomenology reduces the individual experiences to an essence that is unable to be revealed by normal observation (Moustakas, 1994). I used transcendental, as opposed to hermeneutic phenomenology, because I took a purely descriptive approach to the implementation of the FCM, as opposed to an interpretive approach. However, this approach required that I bracketed my bias as a teacher who used a modified version of the FCM (Moustakas, 1994).

With a transcendental phenomenological research design, my goal was to develop a broader understanding of the phenomenon and fill the current gap of the teachers' perspectives using the FCM. I selected this method of research to allow full comprehension of the FCM for other secondary teachers who want to understand the essence of a successful FCM from a secondary teachers' point of view. Through data collection and analysis, I developed recommendations regarding the benefits and challenges experienced FCM teachers have found

while actively engaging students in a 21st century classroom, as well as the necessary resources they identify for implementation of the FCM. Results of this study provide insight for secondary teachers and school administrators, which could offer clarity and help potential users of the FCM gain a deeper insight into effective implementation (Tawfik & Lilly, 2015).

Research Questions

RQ1: How do secondary FCM teachers describe their lived experiences from implementing the FCM?

RQ2: What benefits, if any, do secondary teachers describe from implementing the FCM?

RQ3: What challenges, if any, do secondary teachers describe from implementing the FCM?

RQ4: What necessary resources do secondary teachers perceive important for successful implementation of the FCM?

Setting

The setting for my study was secondary classrooms across the United States. These classrooms were selected because the teacher in the room met the required need for the study, which was using the FCM for at minimum one year. The reason for the limitation was to only include those who have worked through some of the benefits and challenges and understand the resources needed to fully implement the flipped classroom. The schools were both public and private, as the organizational structure of the setting was not important to the study. The study was voluntary and participants were able to choose to participate or withdraw from the study at any time during the questionnaire, interview, or virtual focus group for any reason. There was

not any part of the research done on site for the participants; therefore, school district authorization was not required.

Participants

I used purposeful sampling to determine my participants, as it was the method most often used in qualitative research when resources are limited (Patton, 2015). Purposeful sampling allowed me to identify and select experienced FCM participants (Creswell & Plano Clark, 2011). To recruit participants, I contacted potential participants who discussed the FCM through Twitter, a social media platform. I also asked that the teachers used snowballing and referred others who used the FCM, which was how I found some of the participants. My reason for searching for participants through Twitter was to ensure that I was getting participants who were actively involved and excited about sharing their perceptions on the FCM.

Ensuring maximum variation helped to increase the probability that the findings of my research reflect different viewpoints and help build the structure that is assumed to exist in shared experiences (Moustakas, 1994). My sample consisted of 12 participants, which was within the parameters usually needed to reach data saturation (Francis et al., 2010). An indication that I saturated the data happened when "the analysis no longer revealed anything new or different about the group" (Van Manen, 2014, p. 353). I ensured maximum variation and saturation to provide quality research.

Preliminary selection included selecting participants that state they flip their classroom. This did not specify secondary classrooms or limit to flipping for one year, as those who responded and did not fit that criteria were used to pilot questions. Secondary criteria confirmed the participants had used the FCM within the secondary classroom for at least one year. Finally, I selected those who met a diverse group in regards to age, time using the FCM, and the subject

area taught. I could not select a diverse group in terms of race, as all potential participants who responded to the questionnaire were Caucasians. To ensure potential participants used the FCM, I researched their Twitter feed, and it was evident that they used the method and loved to speak about this method. Most even had picture evidence of their FCM in action. For back-up, I also had several questions on the questionnaire to verify, but the Twitter feed made it apparent they used the FCM. Once final selection was made, each participant received a pseudonym. I then sent recruitment information and certified that consent forms were electronically signed, stating the participants understood the process. To ensure confidentiality and participant anonymity, I always used pseudonyms. Furthermore, I made sure no other persons had access to the raw data, nor did I share any information between participants.

Procedures

Before formal discussion with participants and before collecting any data, I received approval of the Institutional Review Board (IRB) at Liberty University (see Appendix A). After receiving IRB approval, I reached out to potential participants. To accomplish this process, I searched for potential participants within Twitter groups that encouraged using the FCM. If respondents qualified for this study based on the results of the questionnaire (Appendix B), I sent an email with consent (Appendix C). Once a consent was received, the interview and focus group portion of the study was scheduled. If I did not receive an agreement of consent from a qualifying respondent, I sent a follow-up email after one week as a reminder.

Throughout the data collection process, I maintained a detailed audit trail to ensure all procedures were followed and forms were received. I recorded and transcribed all interviews and used member checking, giving the participants a chance to review the interviews for accurateness. I provided details for the virtual focus group and graciously thanked my

participants for finishing up their role in my research. At all times, I reminded my participants that their participation was completely voluntary and they could withdraw at any time with no repercussions.

I securely locked all recordings, questionnaires, transcribed interviews, and field notes in my home safe if these were printed, or on my password protected computer if not. After completion of data collection, my data analysis included organizing, synthesizing, reducing, and enumeration to develop themes in an effort to convey an overall experience of secondary teachers' FCM lived experiences. Lastly, I ensured verification through triangulation and ensured safeguarding privacy by using ethical practices throughout the study.

The Researcher's Role

I am a doctoral student in Liberty University's School of Education, a secondary math teacher, and a for-profit university instructor. Curious about innovative classroom approaches, I implemented a modified FCM with my secondary students. I wanted to share my experiences with my colleagues, but they did not seem as interested as I was in the process. This implementation sparked a curiosity and eagerness to understand the motivation or lack thereof in classroom innovation. Understanding ways in which some teachers easily transitioned to an active classroom and overcame the hesitation to innovate their classrooms should help others ease into the process of differentiation.

During my role as a researcher of this transcendental phenomenological study, where I described secondary teachers' perspectives of their lived experiences in the implementation of the FCM, I avoided bias and conducted my research ethically. I ensured that I was not using the essence of the phenomenon to substantiate a preconceived position, which easily happens (Yin, 2014). I ensured that I asked questions to interpret answers fairly, listen intently, not fall prey to

preconceptions, and avoid looking at new opportunities as threats. Due to the biases that I have as a teacher, I maintained a reflective journal throughout the study to ensure I bracketed out my bias (Moustakas, 1994). Writing down assumptions helped me set aside preconceived ideas on the FCM and enabled me to view the data from a "transcendental state of freshness and openness… not threatened by [my] customs, beliefs, and prejudices" (p. 41). I had no prior relationships or engagement with the majority of the participants. The exceptions are Ada Grace and Mary, both of whom teach for the same school district I teach.

Data Collection

According to Moustakas (1994), phenomenological research is the reflective analyses of life experiences and obtaining good qualitative data requires gaining rapport and building relationships. In this study, I used methods that allowed insight into the essence and lead to a proper analysis of the phenomenon. I used multiple forms of data collection and differing sources to bring validity to the study through triangulating the data by substantiating support for the findings through more than one source of evidence: interviews, questionnaires, and a virtual focus group (Yin, 2014). I ensured each of these sources of data went through an identical process to confirm the themes that appeared were constant among all sources. Using triangulation rendered the participants' perspectives accurately by exploring multiple sources.

I used questionnaires, interviews, and virtual focus groups to collect data. I used the questionnaires to collect demographic and background information from the participants. I used interviews to gain an in-depth understanding of the perceptions and lived experiences of the participants. I used the virtual focus groups to add additional thoughts from the interviews after participants had more time to reflect on their original responses, as well as collaborate lived experiences and share ideas.

Step 1: Questionnaire

The first method of data collection was an Office 365 Forms questionnaire (see Appendix B). I provided a link for this questionnaire via Twitter to explain the completion process, provide general information about the study, and collect demographic information to determine which potential respondents were qualified. Questions 1 through 10 asked participants to provide information (e.g., age, gender, and race/ethnicity), which helped determine qualifying criteria to aid in the purposeful sampling. Questions 11 through 13 helped me to determine if the potential participants were using a true FCM and how they provided pre-class videos, as well as how experienced they were at using the FCM. The questionnaire helped ensure maximum variation and increased the probability that the findings of my research reflected different viewpoints. Lastly, Questions 14 through 16 gave the participants final notices needed to ensure that they wanted to participate in the study and provided me with a way to contact them directly.

Step 2: Interviews

To achieve a full understanding of teacher perceptions of the FCM, I individually interviewed participants, asking questions that I had constructed based on discoveries within the current literature (Tawfik & Lilly, 2015). The interview questions were open-ended and structured to ensure clarity and relevance to the research by maintaining uniformity for each participant (Chiu et al., 2016). Before interviews but after IRB approval, I had two non-participants pilot the interview questions. Interviews were scheduled and occurred via phone with participants choosing the location of their choice outside of their school building, which provided a relaxing atmosphere where the climate was comfortable, enabling the participant to "respond honestly and comprehensively" (Moustakas, 1994, p. 114).

Upon the conclusion of each interview session, I transcribed the dialogue and provided a copy to the participants, allowing them to review and make suggestions regarding corrections as needed. This member checking ensured the validity of the data collection. To ensure safeguarding, I locked all field notes and transcriptions in my home safe. Table 1 contains the interview questions that I asked each participant:

Table 1

Open-Ended Interview Questions

#	Questions
1.	Please describe your initial motivation for flipping your classroom.
2.	Please describe your classroom before flipping, beginning with your daily procedures.
3.	Explain what kind of homework you assigned before flipping your classroom, and how much homework you assigned?
4.	What professional development or administrative support, or lack thereof, have you received related to your flipped classroom?
5.	How do you define innovation and explain how your classroom uses innovative techniques?
6.	Why did you decide to flip your classroom?
7.	What did you do to prepare for flipping your classroom?
8.	Please tell me the benefits and/or challenges that you have encountered from flipping your classroom.
9.	Describe your best practices, including resources, for implementation of the flipped classroom model?
10.	What are the main components of change that you have discovered from flipping your classroom?
11.	In your opinion, what have been the students' reactions to using the FCM?
12.	How do you feel you could improve the implementation of your flipped classroom based on student performance and/or achievement?

Using the FCM allows teachers more time to interact with students, oversee students' engagement with one another, and visualize how in-class time influences knowledge (Moore, Gillett, & Steele, 2014). Questions 1 through 4 helped make sense of where teachers were before using the FCM and led into a discussion on the exact method they use for their FCM. Teachers must use novel strategies and current technology to incorporate social skills, content

knowledge, and increase student participation (Alismail & McGuire, 2015). I used Question 5 to classify and identify the label that Rogers (2003) used to classify innovators. I used Question 6 to look at Rogers' DOI theory to determine compatibility and observability.

Educational reform must focus on accountability measures for both students and teachers (DiBenedetto & Myers, 2016). Questions 7 through 9 helped me determine the psychological, pedagogical, and sociological matters that influence the degree of success that teachers attain when they use new strategies (Birbal & Hewitt-Bradshaw, 2016). Jacobsen (2001) argued that technology aided in the differentiation of problem-solving, collaboration, and critical thinking. For example, SoftChalk LessonBuilder, Guizzes, WebQuests, Wikis, and ePortfolios support these skills (Alismail & McGuire, 2015).

Bandura (1986) proposed that people learned from their social environments, so knowing best practices of others who used the FCM might lead to a sense of self-efficacy in those looking to change their classroom delivery. Teachers must be willing to change the nature of instruction, providing sufficient attention to the complexities of classroom dynamics (Birbal & Hewitt-Bradshaw, 2016). According to Brenner and Brill (2016), "Best practices and exemplary programs certainly provide guidance for how to structure technology integration" (p. 137).

The FCM may allow more in-class productivity compared to a traditional classroom, which improves critical thinking skills (Moore et al., 2014). Teachers must structure a classroom environment that integrates digital tools while addressing in critical thinking, collaborative learning, and problem-solving to the teaching method (Alismail & McGuire, 2015). Knowing if experienced secondary FCM teachers have seen improvement in these areas may help to determine the relative advantage, which looks at the extent to which a FCM is more advantageous compared to the concept it replaces. The teacher must see an advantage to the

FCM to consider using the instructional innovation (Rogers, 2003). I used Questions 10 and 11 to examine productivity, and Question 12 to investigate trialability and discover relative advantage. All three were imperative to understanding Roger's (2003) DOI theory.

The first research question focused on exploring the lived experiences of secondary teachers regarding the adoption of a FCM. Questions 1 through 3 provided information about teachers' instructional practices and experiences before adopting the FCM. Question 5 provided data about how teachers used the FCM as an innovative instructional approach in their secondary classrooms. Question 6 provided information about the reasons for implementing the FCM in class. The second research question focused on the identification of the different instructional benefits in adopting the FCM. Questions 8 and 11 provided information about the perceived benefits of a FCM within the classroom. Question 10 provided information about the main positive changes that occurred because of the FCM implementation. The third research question focused on the different challenges experienced by secondary teachers in implementing the FCM. Question 8 provided information about the challenges experienced during the implementation of the FCM. The fourth research question focused on the resources needed for the successful implementation of the secondary FCM. Questions 4, 7, 9, and 12 provided information about the available resources used in successful implementations of the FCM in secondary classrooms.

Step 3: Virtual Focus Groups

After individual interviews, I set up two virtual focus groups for the participants, as schedules varied and there were two dates that covered all participants' needs. The focus groups served as a time for participants to add additional thoughts to their original responses from the interview, as well as come together as a group to collaborate on common ideas and practices.

The first focus group had seven participants: Ada Grace, Mike, Kate, Arnold, Barry, Tom, and Aaron. The second group had five participants: Sara, Samuel, Sue, Mary, and Anne. The focus groups lasted approximately one hour in length, were recorded, and participants used pseudonyms to maintain anonymity during this portion of data collection. Upon the conclusion of the virtual focus groups, I transcribed the dialogue and provided copies to the participants, allowing them to review and make suggestions regarding corrections as needed. This member checking ensured the validity of the data collection. To safeguard, I locked all field notes and transcriptions in my home safe. Table 2 contains the questions that I asked in the virtual focus group sessions to open dialog for the group.

Table 2

Virtual Focus Group Questions

#	Questions
1.	Please give your description of how you flip your classroom.
2.	Please describe how you plan for your flipped classroom.
3.	What benefits and/or challenges do you encounter in your flipped classroom?
4.	What resources do you find most helpful with flipping your classroom?
5.	What road blocks, if any, have you had to endure with flipping your classroom?
6.	Do you have anything you would like to add to the discussion that you left out during our interview or that you feel important to share with the group?

Data Analysis

Data analysis involved the generation of meaning from collected information (Simon, 2011). A good qualitative researcher analyzes multiple levels of abstraction and presents the study in stages through multiple themes that originate from the data. The goal of my qualitative analysis was to generate themes that encapsulated the collective thoughts and perceptions of the secondary FCM participants (Simon & Goes, 2013). To accomplish this goal, I used Miles, Huberman, and Saldana's (2014) three-step process: data condensation, data display, and

conclusion drawing. While this analysis process appears to be linear, I had to allow the three stages to transpire concurrently and continually (Simon & Goes, 2013).

According to Miles et al. (2014), data condensation is the process of transforming the data that appear in the collection into manageable parts. Schultz (1967) referred to this process as reductionism. However, Miles et al. (2014) disliked that term because it suggested a process of losing or diminishing. This first phase includes bracketing, the process of setting aside preconceived ideas, prejudgments, and biases so I may focus on the phenomenon (Schultz, 1967). Before, during, and after data collection, I looked for significant statements, took marginal notes, and noted relationships that I discovered (Miles et al., 2014).

During the data condensation phase of analysis, open coding took place (Strauss & Corbin, 1990). Shank (2006) defined open coding as the first level of conceptual analysis. Open coding allows researchers to identify and name categories with which the observed phenomena may be grouped (Simon & Goes, 2013). After transcribing the interviews, I used NVivo for the organization and storage of data. I used NVivo for the overwhelming task of coding and organizing the raw data collected. Researchers use NVivo for efficient and systematic storage and organization of large quantities of qualitative data (Bazeley & Jackson, 2013). I used NVivo software to discover emerging themes and stored each theme into a container called a node, thereby allowing me to look for conflicting or similar opinions, uncover issues, and generate new ideas. While I proceeded through this process, I consistently looked for larger and broader thoughts. I read the data from the questionnaires, interviews, and the virtual focus groups, and then read it again (Bogdan & Biklen, 1982). Reading data multiple times ensured that I had a general overview of the overall sense of the themes. I also consistently organized and broke the

data it into manageable units while searching for patterns, as this was imperative for proper qualitative analysis.

Yin (2014) warned to avoid coasting away from the original topic during the condensation phase. To aid in avoiding this process, I used enumeration: the process of quantifying data by counting the times a word, category, or theme appeared in the data (Johnson & Christensen, 2014). NVivo software had a word frequency query, which I used to help accomplish enumeration. I also used Wordle to find commonly used words and phrases to look for overlapping themes. Both of these processes allowed horizonalization to take place. I needed to reduce the categories that I discovered into smaller numbers to allow for a manageable set of themes in the final step (Miles et al., 2014).

Data display was the second step in data analysis (Miles et al., 2014). Data display served as a major role in my qualitative analysis. In this step, I accumulated organized information compactly to gain understanding and lead to conclusions. I took the accumulated data and put it into a display. These displays often came in the form of matrices, graphs, networks, or charts. I used NVivo software to create the displays, thereby giving me the ability to conduct queries and display data as bar charts, models, and other diagrams. Some analysts refer to this concept as axial coding (Strauss & Corbin, 1990). Shank (2006) defined axial coding as the second level of data analysis, where researchers connected data in categories. During axial coding, researchers build a visual model to determine if sufficient data exist to support the interpretation (Simon & Goes, 2013).

Drawing conclusions from data collected was my final step of qualitative analysis (Miles et al., 2014). I interpreted what things meant throughout the analysis process, but I stayed open to change, keeping the conclusions vague at first until they became clear and justified. This step,

according to Simon and Goes (2013), is the process of converting the abstract model from the data display into a written account of the essence of the phenomenon. This final analysis provides a vivid interpretation that closely assesses the experience it represents (Strauss & Corbin, 1990). This cyclical process allowed me to locate and distinguish non-repetitive and non-overlapping statements, code these statements, and then develop these into themes, building a "comprehensive disclosure of experience" (Moustakas, 1994, p. 123).

Trustworthiness

According to Morrow (2005), society evaluates qualitative analysis based on "the paradigmatic underpinnings of the research and the standards of the discipline" (p. 250). Morrow also felt that trustworthiness of qualitative research often led to questioning. To avoid my readers from feeling betrayed on the quality of my research, I avoided "deceptiveness and broken promises" (Miles et al., 2014, p. 62). For this reason, trustworthiness was important to my study, as it afforded others the comfort of trust in my findings on the perceptions and lived experiences of secondary FCM teachers. Guba (1981) declared that I could overcome trustworthiness issues by addressing credibility, transferability, dependability, and confirmability.

Credibility

The first step to trustworthy qualitative research is credibility (Shenton, 2004), which I used to consider internal validity to the study to ensure that what I found in my research was reality. To safeguard this credibility, I have studied the procedures of others who have successfully published qualitative research on the FCM. Furthermore, I maintained a "prolonged engagement" (Shenton, 2004, p. 67) with the participants to allow me to gain ample understanding of the participants and establish a level of trust between all parties. To accomplish

this process, I ensured that my participants felt a level of comfort from our time together and allowed them to approach me with any questions or concerns they had regarding all parts of my study.

Dependability and Confirmability

Dependability addresses the problem of reliability in research, ensuring that others obtain similar results when repeating the research with the same methods and participants in the same context (Shenton, 2004). I did not only report the operational detail of ways in which I gathered the data, but I was also transparent in the reflective process of evaluating the effectiveness of the study. Objectivity was critical to ensure that the readers could fully understand the true experiences and ideas of the participants without investigator bias. To authenticate this process, I admitted all predispositions and produced details to allow others to follow and/or duplicate this research identically. I also used member checking, which not only helped with dependability, but it also ensured that the words matched what the participants intended to convey. Additionally, I accepted all peer scrutiny of my research to allow a fresh perspective to help refine and strengthen the research during my investigation (Shenton, 2004).

Transferability

Transferability was the external validity brought to a study (Shenton, 2004). Yin (2014) defined external validity as the problem of "knowing whether a study's findings are generalizable beyond the immediate study" (p. 47). To help with this process, I ensured my research questions helped obtain generalizations, as questions not formatted properly would have hindered this process. Furthermore, I provided necessary descriptions of the essences that I investigated to permit readers to have a full understanding and facilitate them with comparing instances to those that may emerge in other situations (Shenton, 2004). To ensure transferability,

I have ensured to report on the restrictions I placed on the participants, exposed the number of participants and their demographics, detailed out the data collection and analysis, and remained transparent in the timeframe I used to collect data.

Ethical Considerations

To ensure ethical practices, I did not begin research until I secured IRB approval. Following approval, I made sure to have full consent from each participant before scheduling interviews. As the researcher, I guarantee that the research did not influence me for any reason, and I certify that all stakeholders had full disclosure of the purpose of the study. Any data obtained was stored on a password-protected computer or in a locked safe to respect the privacy of those in the study. I used pseudonyms for all participants. I gave due respect to all parties involved with the research, and participants were "free to withdraw at any time" and "provided detailed information regarding the nature and purpose of the study [to all participants]… prior to" being selected (Moustakas, 1994, p. 110).

Summary

Based on Rogers' (2003) DOI theory as a framework, I conducted a qualitative transcendental phenomenological study to describe secondary teachers' experiences implementing a secondary FCM in the United States. I purposefully selected 12 secondary FCM teachers because they had used the FCM for at least one year. I used questionnaires, interviews, and two focus groups to collect data about secondary school teachers' perceptions of the FCM. My data analysis included organizing, synthesizing, reducing, and enumerating data to develop themes that conveyed an overall experience of secondary teachers using the FCM. I ensured verification through triangulation and ensured safeguarding privacy by using ethical practices throughout the study.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. Chapter Four includes descriptions of the 12 study participants, followed by a presentation of the study's results. The presentation of results includes a discussion of the process by which themes were developed from the data, followed by a presentation of the answers to the research questions. The chapter concludes with a summary of the findings.

Participants

Participants included 10 teachers, one instructional specialist, and one technology integration specialist in the United States. I assigned all participants pseudonyms to ensure confidentiality. Table 3 details the participants' pseudonyms and their demographics. Following the table are the descriptions of the participants, which are alphabetized by pseudonym.

Table 3

Participant Demographics

Pseudonym	Gender	Age	Position	State	Subject(s) Taught	Years using FCM
Aaron	M	40-49	Public School Teacher	NJ	Chemistry, Astronomy	3-5 years
Ada Grace	F	30-39	Public School Teacher	VA	Computer Science, Math	2 years
Anne	F	50-59	Private School Teacher	IL	AP Chemistry, Environmental Science	6+ years
Arnold	M	40-49	Public School Teacher	GA	Social Studies	3-5 years
Barry	M	30-39	Public School Teacher	IL	Life Science	6+ years
Kate	F	50-59	Administrator/ prior Public School Teacher	TX	Physics	6+ years
Mary	F	50-59	Public School Teacher	VA	AP Chemistry	6+ years
Mike	M	30-39	Public School Teacher/ Technology Integration Specialist	NY	Math	3-5 years
Samuel	M	40-49	Public School Teacher	IL	Math	6+ years
Sara	F	30-39	Public School Instructional Coach/ prior Teacher	TX	Science	6+ years
Sue	F	40-49	Public School Teacher	IL	Math	2 years
Tom	M	30-39	Public School Teacher	TN	US History	3-5 years

Aaron

Aaron taught chemistry and astronomy to tenth- through twelfth-graders. Of the ways he ran his classroom prior to implementing FCM, Aaron (individual interview) said the following:

> I would say that my class was a traditional class setup. It would be maybe a do-now on the board. If I'm talking any particular generic "[Aaron] class," kids would come in, sit

> down, get out their notebooks. There may or may not be a do-now on the board. We would take notes, do some work, maybe do a lab, kind of do the traditional "sciency" thing. On the way out, there may or may not be an exit ticket or some sort of formative assessment.

Of his reasons for flipping his classroom, Aaron (individual interview) stated the following:

> My initial motivation was twofold. I first received an article from my supervisor at the time about flip the classroom and I also got news that we were going to go and be a one to one district, one to one Chromebook district. With those two things, that was my original motivation… Yeah, it's not like I researched a lot of methods and was like, "This is the way I got to go!" It just kind of struck me as the way it had to be.

Ada Grace

Ada Grace taught computer science and math to ninth- through twelfth-graders. Of the way she conducted her classes before implementing FCM, Ada Grace (individual interview) reported the following:

> In my math classroom, students would come in, they would grab the notes and the worksheet that they would need for the day, take a seat, and we would go through the notes, spend anywhere between 20 to 45 minutes to an hour. And then we would start going through some other examples on a worksheet, or we'd get out a workbook, or a textbook.

Of her reason for implementing FCM, she stated the following:

> Over the summer one of my coworkers was telling me about the research that she was doing about it, and I thought it was really cool sounding, and did some of my own

> research and decided it sounded like something I would like to try. (Ada Grace, individual interview)

Anne

Anne taught AP chemistry environmental science to tenth- through twelfth-graders. Of her method of teaching before she implemented FCM, Anne (individual interview) said, "Class was always just about me lecturing and assigning a worksheet and then the next day we'd go over the worksheet and then kind of move one. I kept losing kids, you know how that is?" Anne (individual interview) described her reasons for implementing FCM as follows:

> There were a couple things. First off, I had read about Jon Bergmann and I don't know how I read about him, I don't remember that, but I grabbed his book, his and I can't remember the other author… Yes, and I just felt I needed a better way to teach chemistry. One in which I was able to work with the kids more one-on-one and there was just no time to do that [with the traditional method]. [The traditional method] always made me feel like I was missing kids and I never had time to devote to those who really needed it but were reluctant to ask.

Arnold

Arnold taught social studies to ninth-graders. Before implementing FCM, Arnold (individual interview) ran his classes in the following manner:

> I think it was very much a traditional classroom. I would oftentimes start with a warm-up activity, so I would use the LCD projector and just have a PowerPoint presentation where each day there would be a slide with some sort of reflection activity, whether it'd be to activate some prior knowledge, maybe some background knowledge, maybe to do some review for the previous day…Then, it was oftentimes very much a traditional lecture. It

> wasn't just pure lecture, like me speaking and talking at my students. When I do lecture, I really enjoy sprinkling in class discussions. I am real comfortable with that because I think that as an educator that's one of my strengths, just being able to extend some of the information that gets presented, and then as we bring it in lecture form, incorporate class discussion and then exchanged amongst the students.

Arnold (individual interview) described his reasons for implementing FCM in the following terms:

> Several years ago at my previous school, the principal almost casually kind of mentioned it that some of our biology teachers were using a flipped classroom model. I teach social studies. That was my first introduction to what flipping was. At first, I didn't really truly understand it…Then, some years later, I was looking for some professional development opportunities. There was a workshop, so I thought "What the heck. Why not?" So, I attended a flipped learning workshop, like a one day workshop, and from there I really became excited about what the possibilities were because I really understood it more. From there, I then decided to incorporate some flipped individual or individually flipped some lessons. Then, work onto some units along the way. It really evolved from some basic curiosities and some way to get some professional development.

Barry

Barry taught life science to tenth- through twelfth-graders. Before he implemented FCM, Barry (individual interview) conducted his classes in the following manner:

> I would say most of the class days were a mix of me lecturing and the kids working on various activities and labs. And if it was my bio classes, it was a lot of, I would say,

> probably about half lecture and half activities. In my anatomy classes, it was probably about 75% lecture and 25% activities and labs and such.

Of his reasons for implementing FCM, Barry (individual interview) stated the following:

> Our district technology person showed me, actually, the video of Bergmann and Sams' flipping their chemistry class and the things that they were explaining how the kids could go back and revisit things as they need to, just kind of made sense to me. Instead of me deciding when they're going to learn something, this was more on them and so, kind of giving them the opportunity to make time to get the basic material before they come into school to get extra help.

Kate

Kate taught physics to eleventh- and twelfth-graders and college students. Kate (individual interview) described her teaching method prior to her implementation of FCM in the following terms:

> It was pretty standard traditional. We lectured for a 90 minute class every other day, so we're on modified block schedule. And we'd end up lecturing and the lecture would probably take 45 or 50 minutes of the class. And for the remaining time of the class, we would do stations or labs or work on problem practice. Really, how it worked out was, we'd either cram a lab down a kid's throat to the point that they were collecting data as furiously as possible or run through the easiest portions of the problems with them and send them home with the harder portions. When you sit back and look at what we were doing, we were talking at them for 50 minutes, hoping they wrote things down, and the ones in the front wrote stuff down and the ones in the middle pretended, tried to be active and the ones in the back were snoozing and the kids that were absent, just didn't get the

> information. If you were wandering off with a sparkly thing in the room somewhere, then you missed that piece of information. And then did the easy, fast stuff with them and then sent them home to try the hard stuff on their own.

Kate (individual interview) described her reasons for implementing FCM as follows:

> Our failure rates for some of the teachers at our school were up around 30%, which was horrible. Making mine at 15 seem okay, but still horrible, right? Our AP Chemistry teacher… She's the one that brought [FCM] to the schools. I had been watching her and thinking, "You know what, we could do this." And then in the fall, she presented about the Detroit school that had the algebra kids that dropped the failure rate for algebra hugely, significantly… When that was presented, it was like, well, I can't not do it. And so it was to make the class more interactive, use the time wisely, get the failure rates down, improve understanding. All of those things were the hopes. Because we had done some, but we still needed to do more… it gave us the appropriate kick in the behind to make the move.

Mary

Mary taught chemistry to tenth- through twelfth-graders. Of how she conducted her classes before implementing FCM, Mary (individual interview) stated the following:

> Before we flipped, we were on a seven period day so my classes were 45 minutes each. And I would, say on a typical day, I would greet the kids, we would have a little introductory activity of some sort, five minutes, and I would a lot of days lecture and give them some practice during that lecture. Maybe we would do practice problems together on the board or something like that and then I'd give them homework to go take home with them. Maybe 15 minutes a homework assignment type of thing. And then we

> would go over that the next day as maybe a part of our introductory activity or maybe after that… There would be days when I would do nothing but lecture. There would be days when we would do nothing but activities. But most days would be a combination of those.

Mary (individual interview) described her reasons for implementing FCM as follows:

> We were going to a block schedule, and keeping the same amount of content in our classroom, we felt was very important. We heard a lot about how it's difficult to stay on task when you've got block scheduling, and so we felt like [FCM] was going to be the best way to deliver the content, not fry the kids' brains completely, and keep us on track, motivated, and keep the kids going.

Mike

Mike taught eighth-grade math for 10 years, but at the time of study, he assisted other teachers upon request to implement FCMs at all grade levels, as a technology integration specialist. As a teacher, prior to implementing FCM, Mike (individual interview) conducted his classes in the following way:

> I'd say I taught math in a fairly traditional sense for about--I wanna say it was seven years. And I would try different things and tweak the way that I delivered content, but it was still really teacher-centered and I'd have students that were absent and falling behind, I had students that just weren't getting things. I feel like I had so much to cover and so little time.

Mike (individual interview) implemented FCM to increase student success:

> I knew there had to be a better way. And really that was my motivation, was that kids were failing the class and I wasn't reaching them. Like how did I help my struggling

> students, and even how did I help my top-performing students maybe get a little further as well. My motivation was the fact that it wasn't working and I kept doing the same thing without getting better results, so I knew something had to change.

Mike (individual interview) also described his present work as a technology integration specialist:

> I am in the classroom, but I am essentially at other people's request. So I am still teaching; I just don't have my own roster of kids. So I could be in kindergarten one day and with seniors the next. I help other teachers that may want to venture into flipping their classroom, use the technology that they might be a little intimidated by initially.

Samuel

Samuel taught math to ninth- through eleventh-graders. Describing how he ran his classes before implementing FCM, Samuel (individual interview) stated the following:

> It was very traditional in the sense that you came into math class, you should've had the homework done that I assigned the previous night, because today we're moving on with the lecture. If you're lucky, you have five or 10 minutes at the end of class to get tonight's homework started, and the process will repeat tomorrow until we reach a quiz, and that process will repeat again until we reach the test… Homework [came] straight from the textbook, it would've been 25-30 problems an evening. And it was graded only on a completion basis kind of deal.

In explaining why he implemented FCM, Samuel (individual interview) stated the following:

> My initial motivation was actually based on the needs of absentee students and the time I was spending going through, re-teaching students who were not present physically. So

> that was my initial piece of interest, and what I was hoping to initially solve with flipping.

Sara

Sara worked as an instructional specialist in science classes for seventh- through twelfth-graders. She supported approximately 70 science teachers. Before becoming an instructional specialist, Sara taught biology and anatomy. She described how she conducted her traditional classes as follows:

> So, I taught mostly anatomy. A little bit of biology. And I'll talk about my anatomy class because that's kind of my class that I ended up… only teaching anatomy, so that transformation was the most dramatic. But before I did a flipped classroom, if you would look at my lesson plans, I would say most days it was me lecturing for 90 minutes. And then maybe every third day, a lab. Some sort of hands on dissection or some sort of, you know, some sort of lab. But in between the labs was one or two days of just me giving notes and the students taking notes. Which was a whupping for me…I mean, you go into auto pilot. You just almost have your lecture memorized and you just ... You know, you just regurgitate without even thinking about what you're saying. It's just … It's bad. (Sara, individual interview)

Of her reasons for implementing FCM, Sara (personal communication) stated the following:

> I, well, [I had] two motivators. One was, there was a couple science teachers at our school that were doing a flipped classroom, and they were having a lot of successes. So I just wanted to jump on the bandwagon and be cool like them. Then, at that same time, Jon Bergmann and Aaron Sams came to our school and I got to meet them. And they really just talked about the logistics. And it was so doable. I was like, oh, yeah, I'm on

board 100 percent. So, basically that summer I made the decision and jumped two feet in.

Sue

Sue taught sixth-grade math. In describing how she conducted a traditional classroom, Sue (individual interview) stated the following:

> The kids would come into class. There was always a warm-up up on the projection screen. They would work on that. I would check their work in, just to make sure they had it done. We would go over the warm-up. Then we would go over and collect homework. We would answer any questions, which was usually very brief, because I noticed they would just be sitting there, "Anyone, anyone have any questions? You guys all got this right?" It just felt very, "Nope. Good. Okay, next." Then it went onto the lesson, which that was like the lecture portion of it. They'd take notes. That seemed to always last a long time, because there's always interruptions. Kids messing around. There's always something stopping that lesson. Then I would stop, have them try out some problems. Some of my class sizes can be big, so I try to get around as much as possible, get some guided practice in. Here, I would let them start the homework, so I could try to see them start it, but usually we're talking maybe five to ten minutes left to class, which is not enough time to see if they really understood it. Then they'd go home and try it, and they would not do well on it. Then they'd come back the next day and the cycle repeated.

Sue (individual interview) decided to implement the FCM because she thought the technology would benefit students, and because she was ready to try a new teaching method:

> We were excited about the technology piece. I'm like, "Well clearly technology should be opening new doors for a lot." The other thing that was motivating me to do it, for change in general. I've been doing this for over 20 years. I just felt things in my instruction were stagnant. I felt like something needed to change. The kids were changing. I felt like everything was very the same all the time. I just needed something a little different.

Tom

Tom taught U.S. history at the eighth-grade level. Before he implemented FCM, Tom (individual interview) conducted his classes in the following way:

> Daily procedures, [the students] come in the class and we'd have a bell ringer every day. A lot of days would be here is a historical quote let's do a little quick analyzing of it. Or here is some vocabulary words you had, tell me about them. Just very basic things like that. Then, as usual, I would just stand and talk most of the time because it's social studies and I'd tell stories; I felt like I had them pretty engaged. They'd be taking free-hand notes because I started that a year before flipping.

Tom (individual interview) decided to flip his classroom because the technology appealed to him:

> One fall, I went to my first technology conference the guy presented on flipping and I just thought I could totally do that. I'm a techie type person like I can make this work and I didn't have any test scores to worry about. I thought: you know what, if I'm ever going to try something crazy, this is the time to do it. Had I had test scores I probably wouldn't have. That fall I worked over Christmas break and Thanksgiving break and got it ready and that's when is started doing some videos.

Focus Group 1

Focus Group 1 was composed of seven participants, including Ada Grace, Mike, Kate, Arnold, Barry, Tom, and Aaron.

Focus Group 2

Focus Group 2 was composed of five participants, including Sara, Samuel, Sue, Mary, and Anne.

Results

This presentation of the study's results includes two subsections. The first subsection, Theme Development, includes a description of the data analysis process through which themes emerged from the one-on-one and focus group interview data. The second subsection, Research Question Responses, includes discussion of ways in which the themes that emerged during data analysis were used to answer the four research questions.

Theme Development

As discussed in Chapter Three, I aimed to generate themes that encapsulated the essence of the meaning of the perceptions of the secondary FCM teachers, as recommended by Simon (2011). To accomplish this goal, I used Miles et al.'s (2014) three-step process. The following discussion of theme development includes descriptions of the data condensation step and the data display step that were included in the three-step process described by Miles et al. Discussion of the final, conclusion-drawing step is presented in the Research Question Responses section, below.

Data condensation. After I transcribed the interviews verbatim, I uploaded the transcriptions into NVivo 11 software for analysis. The data condensation step of the analysis involved open coding, as described by Strauss and Corbin (1990). During open coding, I read

and reread the interview transcriptions, identifying and naming categories into which the observed phenomena could be grouped, as recommended by Simon and Goes (2013). I broke the data into the smallest units that could be evaluated in a meaningful way, and I placed these data elements into nodes in NVivo, labeling each node with a descriptive word or phrase and grouping data elements that indicated similar perceptions and meanings of the phenomena into the same node. During this step of the analysis, I grouped 252 data elements into 33 codes. Sample quotations from the codes are provided in the discussion of the data display step of the analysis below. The tables in Appendix D indicate the codes that emerged during data condensation/open coding, the number of participants who contributed data to each code, the percentage of participants who contributed data to each code, and the percentage of data elements included in each code.

Data display. Data display was the second step in data analysis, as described by Miles et al. (2014). During this step of the analysis, I connected the codes that emerged during data condensation/open coding into categories or themes. In NVivo, I created parent nodes, which I labeled with words or phrases that described a category of perceptions or meanings of the phenomena. I placed open-coding nodes under the parent nodes as child nodes when the child nodes included data that supported the perception or meaning indicated by the category label. During this step of the analysis, I grouped 33 codes into five themes. The five themes, listed and discussed below, include: (a) changes to planning and preparation, (b) best practices, (c) resources and tools, (d) benefits of implementation, and (e) gaining buy in. The table in Appendix E indicates the themes that emerged, the codes that contributed to the themes, the number of data sources that contributed to the themes, and the frequency and percentage of each theme's occurrence in the overall dataset.

Theme 1: Changes to planning and preparation. Data from 12 out of 12 one-on-one interview participants and two focus groups were included in this theme. Participants described their experiences of the changes they made to their class-planning and preparation when they implemented the FCM. Codes grouped under this theme included content- and lesson-planning, preparing parents and students, classroom management, and self-preparation.

Data grouped under the code *content- and lesson-planning* indicated that in implementing the FCM, teachers needed to create and upload videos and assessments, as well as prepare new materials to use during the class time that would have been spent on lecturing before implementation of FCM. Seven one-on-one participants and one focus group contributed data to this code. Aaron stated, "To prepare, it was basically the first thing I had to do was make sure all my content was on video" (one-on-one interview). In Sara's experience, preparing videos had been difficult because she had tried too hard to perfect the presentation: "My first couple videos took me forever… Like, one 15 minute video was taking me like two hours. But that's because I was trying to be a perfectionist" (one-on-one interview). Tom indicated that some degree of perfectionism had been necessary in his video preparation; however, to ensure effective delivery of content, "in video, you have to hit everything clearly and concisely" (one-on-one interview). Barry stated that, in his experience, a large amount of preparation had been needed for his first year of FCM implementation, but that subsequent years had been easier: "I made every single video and every single everything for my anatomy and physiology classes. And it was kind of a lot but, I mean, the stuff that I did well, I'm still reusing it seven years later" (one-on-one interview). For Anne, FCM preparation involved putting her quizzes online: "Most of my quizzing is done with forms on Google Classroom" (one-on-one interview).

A Focus Group 1 participant said of FCM implementation that planning was an ongoing process: “The constant planning of what to do better always happens.” A different Focus Group 1 participant stated that flipping the classroom had allowed more in-depth instruction, but this feature of the method had required additional planning: “Flipping the classroom really provides for a lot of in-depth material and to really kind of go with things… I have a lot of time where I can really get in depth with a lot of the different activities that we do.” A third Focus Group 1 participant summarized the differences between planning for a traditional class and planning for a flipped class:

> That kind of traditional planning--like, what am I going to talk about today? How am I going to teach? What am I going to teach?—that kind of has already been taken care of by however we're delivering the content. Then we can focus on what we're doing in our classroom to help that group space, that active learning space.

Responses from 5 out of 12 one-on-one interview participants were included under the code *preparing parents and students*. Data included under this code indicated that planning and preparation teachers had experienced a change when implementing FCM, which was the need to prepare their students for the new method of instruction. Arnold stated that to teach his students how to learn in a flipped classroom, “I walked them through how to navigate the website, and then I would just put videos up there for them to do that.” Arnold also described a technique he had learned from a fellow teacher for helping students master the new method of content delivery. In implementing the practice, Arnold would distribute paper to his students, and then have them watch a video, which taught the method for folding the paper into an origami animal. Arnold stated, “Once it's done and everybody basically got nothing,” he would explain to the students that although the video might have moved through the instructions too quickly to follow

on a single viewing, students could adjust the playback: “Now you know how you need to watch one of my videos. When you don't understand something, you pause it, you rewind it, you watch it several times.” Arnold also expressed that he had encountered a need to “keep parents involved and updated” about FCM implementation.

Barry gave parents access to a video: “Even having a five minute video, I explained to the parents how things work… because most parents even today, if they've never seen or experienced [the FCM], they're not really gonna totally understand it.” Barry also spent the first three or four days of each class teaching students how the FCM worked: “At the beginning of the school year the first three, four days we don't do any school stuff… It's basically… me starting to explain how the class works.” Kate expressed the following to parents to prepare them for FCM:

> Yes, your student has a video from YouTube as homework for Physics. They are going to take notes. The next day they came in and we had the whole class period to do a lab instead of that half an hour chunk to cram it down their throats. (one-on-one interview)

Sue prepared her students for FCM implementation in advance by discussing the method with them and asking for their feedback. She compared her experiences to those of another teacher who had not introduced the method prior to implementation:

> I had a much better response from my children immediately than she did… Because I had them thinking about it ahead of time, and I kept talking to them about it, and then when we did it, it made sense to them.

Four out of 12 one-on-one interview participants and both focus groups contributed data to the code *classroom management*. Teachers indicated that implementing the FCM had freed class time that had previously been devoted to lecturing, and teachers needed to plan and prepare to make use of this time. Aaron stated, “You get a lot of time back when you flip your

classroom," and added that he had used this time in the following ways: "I wasn't going to do more, I was going to connect with the kids more often. I was going to call them up one-on-one, do individual and small group check-ins" (one-on-one interview). Mary stated that in her experience, "Classroom management was a little hectic." In describing why the classroom was more difficult to manage under the FCM, Mary explained, "There are some students who really need that quiet room for tests and some of them working together in groups nearby were just too distracting" (one-on-one interview). To help students cope with these distractions, Mary needed to be flexible in her planning and try different classroom management strategies.

A participant in Focus Group 1 stated,

> You end up having more time in the class to do when you flip. And so, the thing that I always consider when I'm planning is not only what to do, but I also consider whether today's a good day to conference with my students.

A participant in Focus Group 2 planned class time so thoroughly that every minute was accounted for in advance, such that classroom management issues did not arise during instructional time: "There's no time to be a disruption. There's no time to be a classroom management issue. There's always something."

Four out of 12 one-on-one interview participants contributed data to the code *self-preparation*. Data grouped under this code indicated that teachers needed to plan and prepare for the FCM implementation by teaching themselves about the new instructional method. Aaron prepared himself by reading: "You have to read Aaron Sams and Bergmann's book, *Flipped Learning*… You have to read *Flipped Learning 2.0* by Jason Bretzmann… also *Flipping with Kirch* by Crystal Kirch." Ada Grace reported that her self-preparation involved finding software that she could both access and use during FCM implementation:

> First thing I had to do was find a software that I liked. And that, honestly, took way longer than I was anticipating because, as a teacher, I'm trying to find things that are free...So finding software that was decent enough that would allow me to create these videos, and edit them, and post them for free was a big deal for me. (one-on-one interview)

Mike prepared himself by reading blog posts by other educators and attending summits about flipped learning. He described the blog posts he studied in his self-preparation: "Great blog posts I remember following, like Brian Bennett and Crystal Kirch and Jon Bergmann and Aaron Sams." Tom also prepared himself by using online resources: "I like TED [talks] on professional development. I learned how to flip my classroom because I listen to Jon Bergmann's podcast."

Changes to planning and preparation are critical to implementing the FCM successfully. Those wanting to flip their classrooms must understand that it was not simply having students watch videos for the lesson and changing nothing else. Preparing the content, students, parents, and administration was imperative for a successful FCM.

Theme 2: Best practices. Twelve out of 12 one-on-one interview participants and both focus groups contributed data to this theme. Codes grouped under this theme included data in which participants identified the FCM practices as the most effective. Perceived best practices for the FCM implementation included frequent assessments and feedback, use of differentiation, and use of groups and one-on-one time. Table 4 indicates the practices that teachers perceived as most effective, the number of one-on-one interview participants who identified each best practice, and the percentage of participants who identified each best practice.

Table 4

Best Practices for FCM Implementation (Subthemes)

Best practice	Number of participants identifying best practice	Percentage of participants identifying best practice
Frequent assessments and feedback	8	67%
Differentiation	4	33%
Groups and one-on-one time	3	25%

Note. $N = 12$.

Frequent assessments and feedback. Eight out of 12 participants indicated frequent assessments and feedback were best practices for FCM implementation. Six data-condensation codes included data that indicated frequent assessments and feedback were perceived as best practices, including make it matter; constant tweaking; knowing where kids are; redo and review; student direct feedback; and question forum. Responses coded under *make it matter* indicated that a best practice for using assessments was to give students an incentive to perform well, such as having the assessments significantly affect overall course grades.

Barry stated, "Anatomy and physiology is… 90% summative assessment." Kate gave an example of her method for ensuring that her students viewed her videos: "Somewhere during [the video], I'm going to wear a color bow tie and that's going to be one of the questions on my test. What color bow tie did I wear during the problem of this?" Aaron indicated that deciding ways in which different assessments should impact the overall course grade required some reflection on the part of the teacher: "I try to change and tweak and modify my grading system to reflect what I really believe philosophically as a teacher."

Responses included in the code *constant tweaking* indicated that a best practice for FCM implementation was using assessment results to determine adjustments to future assessments and content delivery. Anne stated, "I re-work my quizzes over and over and over again, or have been

doing that in order to try to pinpoint where the student is having a misconception." Barry stated that assessments allowed him to determine which students were ahead of the class so that he could make advanced content available to them, although this required him to be organized and to plan ahead:

> We had a Google sheet that I was keeping track of the kids that were kind of getting ahead… If I have one kid that's a week ahead of everyone else, I have to have basically everything ready for that one kid.

Responses coded under *knowing where kids are* indicated that teachers used frequent assessments to determine students' needs and make adjustments to the course accordingly. Assessments could allow teachers to evaluate the effectiveness of FCM, such as in Samuel's experience: "With flipped classroom, I run around three percent drop between the performance in the class throughout the 18 weeks, and a three percent drop on the class average," compared to a 10% drop before the FCM was implemented.

Responses included under the code *redo and review* indicated that assessment results showed teachers and students which material needed to be reviewed. Samuel stated, "It's really easy for [students] to see once they've gotten something wrong and how to correct it." Data grouped under the code *student direct feedback* indicated that surveying students for feedback on how the class was being conducted was a best practice. Anne stated, "I assess how am I doing about midterm through the semester. I have [students] fill out a little survey, how do [they] think I'm doing." Tom made a number of adjustments to course delivery in reaction to student feedback: "I believe in customer feedback and my classroom has changed tremendously in the past four years since I started doing surveys." Data grouped under the code *question forum* indicated that providing a forum in which students could ask questions was an effective means of

assessing student progress: “If I've got it on a form where they're just typing something in, they're more likely to ask a question” (Anne).

Differentiation. Four out of 12 teachers indicated in their one-on-one interviews that, in their experiences, using differentiation was a best practice for the FCM implementation. Participants perceived differentiation as “do[ing] different things different ways for different people” (Aaron). Mary stated the following:

> Being a mastery class, everyone is at a different spot. So I have some students who do everything on their own...then I have other students who have formed little groups and they...watch podcasts together, they do the practice problems together, they check their answers with each other.

FCM allowed Mary to let students work at their own pace or to work in groups or alone, according to the way in which they were most comfortable. She believed that accommodating different learning styles was a best practice for the FCM implementation. Samuel stated, “The best practice I have is provide a kid more than what you think they're gonna need, cause some kid's gonna need it.” Samuel accomplished this by uploading optional videos that students could view if they were having difficulty understanding aspects of the content in the required videos.

Groups and one-on-one time. Three out of 12 teachers indicated that, in their experiences, using group activities, as well as one-on-one time, was a best practice for FCM implementation. Sue stated, “I use my group space time to work with students. I will pull small groups sometimes, but I use it a lot for one-on-one.” Sue was careful to assess students during group time; however, “I hold [students] accountable in the group space… They fall behind if they're off task… I'll start asking them questions. I'll have them show me what they know.”

Aaron agreed that accountability was necessary during group time: “I… always have an accountability tool for watching the videos or have the individual space work.”

Effective best practices are critical to providing a successful FCM. The participants in this study found frequent assessments gave the opportunity for individualized feedback. This feedback promoted differentiation through group and individual experiences. These best practices support the importance of proper resources and tools being used to build a successful active learning environment.

Theme 3: Resources and tools. Data from 12 out of 12 one-on-one interviews and both focus groups indicated that resources were needed for FCM implementation. Two of the codes that emerged during data condensation included data that indicated which resources and tools teachers needed, including software and video lessons. Ten one-on-one interview participants and both focus groups indicated that *software* was a necessary resource for FCM implementation.

Software, which teachers identified as effective, included Google Classroom (mentioned by six one-on-one participants and one focus group). Anne said of Google Classroom: “Google Classroom allows you to create a form and our debriefs are all on forms. That's where our quizzing is done too” (one-on-one interview). Anne indicated that using Google Classroom for quizzes helped her to save time on grading: “I was grading a hundred quizzes every other day… I adopted Google Classroom for that...and then I can easily grade the quizzes… while [the students are] still in the classroom” (one-on-one interview). Tom stated, “Google classroom, that’s our home for everything,” although he had chosen to use this application primarily because his district required him to use the application. In making a comment similar to Anne’s, Kate said, “Google is great, you can do Google forms for quick assessment” (one-on-one interview).

Additional software applications were identified as effective in one data source each, including Hapara, Ted Talk, PowerSchool Learning, Quizlet, Camtasia, Google Drawing, Vimeo, CueThink, Bit.ly, Screencastify, Twitter, and Canvas. In describing her use of the monitoring software Hapara, Anne said, "I can be helping someone at my desk and I can be looking at screenshots of what [students are] looking at all at the same time" (one-on-one interview). Mike said of CueThink, which he described as a learning application that was available at no cost on iPads, "It really allowed my students to screencast their own videos, and it took them through Polya's four steps of problem-solving… and it pushed them to a gallery, so the students could actually see each other's screencasts" (one-on-one interview).

Ten out of 12 one-on-one participants and both focus groups identified *video lessons* as an effective resource for FCM implementation. Nine one-on-one participants stated that they made their own videos, while a tenth participant, Anne, indicated that she found videos for her students online. Anne reported that using other teachers' videos required a teacher to be flexible: "If you're using someone else's videos, sometimes you have to change a little bit about what you do, but they're perfect for the kids" (one-on-one interview). Aaron indicated that he made his own videos using hardware and software that he owned, and he added that he found it necessary to add annotations to videos for clarification: "I think it's important that you have a way to make annotations so that you can point out things and highlight things and interact the way you would normally in a traditional classroom" (one-on-one interview). Aaron stated that touchscreens and mouses were both effective ways of adding annotations to videos.

Teachers who made their own videos stated that they perceived short videos, ranging from 10 to 15 minutes, as the most effective way to deliver content to students. Kate said, "I try to make [videos] much shorter and topical. That way if a kid understands one part of it, but

needs to review another part, then they only have to focus on the one thing" (one-on-one interview). Mike indicated that teachers who made their own videos should be "okay with not being perfect… Your video doesn't have to be a professionally produced thing" (one-on-one interview). Mary tried to make her videos entertaining, but feedback from her students indicated that shorter videos were preferred over videos that were prolonged by entertaining content: "The [videos] that we got were fun and interesting, but longer than necessary, and [students] didn't like that extra plot" (one-on-one interview).

In Focus Group 2, a participant stated that videos were a resource that needed to be prepared in advance: "You need to have foundation of videos and activities before you let the kids start moving through the material at their own phase." Another Focus Group 2 participant stated, "Make your own video. It takes a bit of time but once you get a really nice video in place, it makes all the difference." However, two Focus Group 2 participants noted that pre-made videos were available. One Focus Group 2 participant stated, "We bought a set of videos" before eventually making their own, while another Focus Group 2 participant stated, "There's a couple of really nice video makers out there like for chemistry. Tyler DeWitt is one guy."

Data showed two main resources needed for a successful implementation of the FCM: software and video lessons. Being able to record their own lessons was a high priority to the participants. Having software to track the progress of students and their use of the videos, such as Google Classroom, was a top priority.

Theme 4: Benefits of implementation. Twelve out of 12 one-on-one interview participants and both focus groups contributed data to this theme. Three codes were grouped into this theme, including rapport and enjoyment, opens up potential, and own pace. Eight out of 12 one-on-one interview participants contributed data to the code *rapport and enjoyment*. Data

included under this code indicated that FCM implementation increased students' enjoyment of class and allowed teachers to build better relationships and rapport with students. Kate made the connection between students' enjoyment of the class and teachers' increased rapport with students, saying, "There was time to work with every kid. You could address their problems and confusions before they got frustrated with it which I think was really huge," as a result of which, Kate added, "We had fewer people hating physics" (one-on-one interview). Sara said, "The relationships I formed with the students were stronger. I really got to know every single one of my students forward and backwards" (one-on-one interview). Mike said of FCM, "Kids liked the class better that way" (one-on-one interview). Barry stated that his "biggest fear" about FCM implementation was that seeing his students less frequently would impair his ability to develop relationships with them, but he stated, "The kids that I see less often but more quality time because it's more one on one time" (one-on-one interview). Like Kate, Ada Grace implicitly connected teacher-student rapport and student enjoyment, saying, "[Students] enjoy the [flipped] classroom, like they actually enjoy coming to math class, which is fantastic… We have a great rapport with one another" (one-on-one interview).

Five out of 12 one-on-one participants and both focus groups contributed data to the code *opens up potential*. Data included in this code indicated that FCM was perceived as a means of bringing out student potential by giving students a much more active role in the class than traditional teaching allowed. Ada Grace, who grouped her students into pods of four or five desks each, stated that her students reinforced the lessons and taught one another when she assigned classwork: "They start off working independently, but ultimately, someone's going to get stuck and eventually they'll turn to their neighbor" (one-on-one interview). Anne stated, "Probably the biggest thing that I see is that [students are] much more active with each other."

Anne added that increased interaction had made the students into more active learners: “They do a lot of chatting when they're working on worksheets, and I keep thinking that's not necessarily a good thing, but when I walk around they're chatting and… they're teaching someone else how to do it” (one-on-one interview). Anne added the following example of how active learning brought out student potential:

> I watched these kids the other day, this one group the other day, one person got one part of it, another person got another part of it, and so they taught each other what they understood. In the end, the entire group were getting it. (one-on-one interview)

Barry connected active learning with a better education for students, saying, “There's nothing in the world ever that would cause me to go back to doing things the way I would do them before...my students are getting a better education, they're way more in control of it” (one-on-one interview). A Focus Group 1 participant attributed better student performance and higher student commitment to the class to the more active role that students took in the flipped classroom, saying that students had responded positively to “how I've got them set up in pods and groups. And that I'm not just standing at the board lecturing at them. That we're doing things together as a group.”

Six out of 12 one-on-one interview participants stated that a benefit of FCM was that students could learn at their own pace. Tom stated, “I have kids that they will, they can just get done so quickly and they can spend more time reviewing” (one-on-one interview). Alternatively, Tom noted that students who learned more slowly had easy access to a reteaching tool: “They have the opportunity to hear the lesson again and sometimes over and over again” (one-on-one interview). Arnold said of students’ ability to review videos: “ELL students can go back and watch that. I think that's been very helpful for students that are like some of my special

education students or my ELL students… They don't have to feel like they're behind everybody else" (one-on-one interview). Like Tom, Kate found that FCM worked for both slower students and faster students. Of students who were ahead of the class, Kate said, "Kids that could get it quickly, whatever that topic was, weren't bogged down waiting for the other kids that were moving slow" (one-on-one interview). Of students who were behind the class, Kate said, "The ones that were moving slow had the time and weren't being pushed forward faster than they needed to go" (one-on-one interview).

Understanding and appreciating the benefits of the process are important to maintaining a successful FCM classroom. When potential FCM users are tired from all the planning and recording of videos, they must remember that seeing the rapport and enjoyment on the student's faces when they finally "get it" opens potential that students and teachers may have never thought was possible. Participants reported that these moments made it worth every bit of the effort.

Theme 5: Gaining buy-in. Twelve out of 12 one-on-one interview participants and both focus groups contributed data to this theme. Data included in this theme indicated that getting buy-in from stakeholders was perceived as a challenge associated with FCM implementation. Three of the data condensation codes included student resistance, parent buy-in, and peer and administrator buy-in. Nine one-on-one interview respondents and both focus groups provided data indicating that *student resistance* or gaining student buy-in was a challenge associated with FCM implementation. Ada Grace said, "Initially, most [students] didn't like [FCM], they heard what it was like in the other subjects at school in the flipped classroom so they immediately thought it was going to be a terrible, horrible experience" (one-on-one interview). Ada Grace added that student resistance was overcome when students "[saw] that [FCM] works." Barry

described the abruptness with which students began to approve of FCM as “a switch that flips,” and he described the process in these terms:

> Once [students] see after the first couple units, that all the work that I've put into it can make it better for them and there's a switch that flips, where they recognize that it's more about the learning than it is just completing assignments and completing assignments and completing assignments. (one-on-one interview)

Kate encountered “pushback” from students midway through a semester, when her physics class entered a challenging unit. She found that students who had taken physics before perceived FCM as an improvement over their previous exposure to the unit, but students who did not have this basis for comparison attributed the difficulty of the material to FCM: “There was that underlying thing of, ‘It's not going well for me, therefore, this new thing you're doing must be wrong. Because I wouldn't have a problem if you were doing it the right way’” (Kate, one-on-one interview). Mary expressed that to take charge of their own education in the ways FCM demanded, students needed to be mature and organized: “There are some who aren't mature enough to handle that… [or] even if they're mature enough, they're not organized enough or comfortable enough to take ownership yet” (one-on-one interview). A participant in Focus Group 1 stated, “The biggest hurdle I had at the beginning of the year was just getting the kids to buy into [FCM]. But then after a couple of weeks into it, their whole demeanor in my classroom completely changed.” A Focus Group 2 participant surveyed students on their reactions to FCM and arrived at the following perception:

> I truly believe the students that didn't like [FCM] just didn't like it because they had to do more work. Like it was harder for them. Like they couldn't just coast and sit there and not take notes and just go through the motions. Those were the kids that really didn't like

it. (Focus Group 2)

Sara agreed, saying in her one-on-one interview, “I think most kids don't like flipped classrooms… it forces them to learn. They can no longer just sit and get and be passive...They actually have to use their brain.”

Two one-on-one interview participants and both focus groups provided data indicating that gaining buy-in from administration and from other teachers was a challenge associated with FCM implementation. Kate suggested that administrators in her school were nervous about implementing FCM, such that they monitored the class’s progress carefully: “I think I had more administrators in my class that year than any other year. Which is fine, I didn't mind it at all, I wanted to help. I wanted it to work” (one-on-one interview). A participant in Focus Group 1 was responsible (with a colleague) for presenting FCM to the other 250 teachers in their large high school. This participant said of the teachers in the audience: “If they had pitchforks and knives and fire, we would've been skewered and flamed at the time” (Focus Group 1). Another Focus Group 1 participant described the difficulty of being the only teacher in a school to implement FCM: “I teach at a school that has… 60 high school teachers, and I'm the only one that flips in my high school. So, that's really frustrating and difficult when I'm trying to figure out how to do something.” A participant in Focus Group 2 encountered resistance from a technology director: “She's like, ‘I think this isn't going to work.’ I looked at her and I said, ‘You know… I have already been doing this for about seven years.’”

Two one-on-one interview participants and both focus groups provided data indicating that gaining buy-in from parents was a challenge associated with FCM implementation. Ada Grace lacked a source of guidance when she began to implement FCM; as a result, she had not thought of soliciting parent buy-in prior to implementation: “I did not do that, and ended up

getting a lot of backlash from parents; that's not fun to deal with" (one-on-one interview). Anne stated, "Every now and then you'll have a parent who thinks that they know how to teach and so they decide that this method isn't the right method," but she added that this challenge could be overcome: "I can help the parent understand that this is really the best thing for their kid...to learn how to take control over their own learning" (one-on-one interview). A Focus Group 1 participant said of FCM implementation: "You need parent support because they can cause a lot of issues." A different Focus Group 1 participant that parent buy-in could be achieved by "letting parents know why you're doing this. I'm doing this because it's going to do this and this and this for your student."

Gaining buy-in from stakeholders was perceived as a challenge associated with FCM implementation. Students could be resistant to the level of learning that developed from an active classroom. Other teachers, administrators, and parents could be hesitant in understanding the benefits that keeping with an active classroom can provide. This method of teaching was different than what they were taught, which could be a challenge to many. However, this research showed that when given a fair chance and implemented correctly, the FCM produced the active learning environment necessary for 21st century learning.

Research Question Responses

This section indicates the results of the conclusion-drawing step of Miles et al.'s (2014) three-step data analysis process. The section includes discussion of how the themes described in the Theme Development section were used to answer the research questions. This section is organized by research question.

Research Question 1. Research Question 1 was the following: How do secondary FCM teachers describe their lived experiences from implementing the FCM? Theme 1 and Theme 2

were used to answer this question. Theme 1 was *changes to planning and preparation*. Data grouped under Theme 1 indicated that teachers described their experiences of FCM implementation regarding the changes their planning and preparation procedures had undergone when they flipped their classrooms. Teachers reported the following four changes in the way they planned and prepared: (a) changes to planning of individual classes, due to the necessity of planning activities to constructively use time that would have been used for lecturing under the traditional teaching method; (b) changes to the way they prepared students for the class, due to the necessity of teaching students who were unaccustomed to the method how to learn effectively using FCM; (c) changes to the way they prepared parents whose students would be learning under FCM, due to the necessity of acquainting parents with the method and its justifications in order to avoid pushback; and (d) a need to educate and prepare themselves by reading books, articles, and web-based resources about FCM.

Theme 2 was *best practices*. In the data grouped under this theme, participants identified the FCM practices that were the most effective. Teachers experienced the following three practices as the most effective for FCM implementation: frequent assessments and feedback, use of differentiation, and use of groups and one-on-one time. Frequent assessment and feedback involved administering recurrent knowledge assessments to students to track students' progress and make students aware of weaknesses and strengths in their comprehension of the material. Use of differentiation involved allowing students to learn at their own paces and in their own ways. Use of groups and one-on-one time involved shaping students into active learners by allowing them to assist one another in collective problem-solving and by working with individual students on a one-on-one basis.

Research Question 2. Research Question 2 was the following: What benefits, if any, do secondary teachers describe from implementing the FCM? Theme 4 was used to answer this question. Theme 4 was *benefits of implementation*. Data grouped under this theme indicated that the benefits of FCM implementation were perceived as (a) rapport and enjoyment, (b) opening up students' potential, and (c) students learning at their own pace. Teachers could build rapport with students through more one-on-one time and through students' taking a more active role in class. Teachers' perceived the ability to work closely with students in these ways made classes more engaging for students, such that students gave more favorable formal and informal feedback about FCM instruction than about traditional instruction. Opening up students' potential was achieved through giving students a far more active role in their education than traditional instruction allowed, such as by allowing peer-to-peer teaching and group work. Additionally, students could learn at their own pace under FCM, such that advanced students could move ahead of the class, and students who needed reteaching and additional explanation were able to receive this education.

Research Question 3. Research Question 3 was the following: What challenges, if any, do secondary teachers describe from implementing the FCM? Theme 5, *challenges of implementation*, was used to answer this question. Data grouped under this theme indicated that teachers perceived gaining student, parent, administrator, and peer buy-in as challenges associated with FCM implementation. Some participants perceived the difficulty of gaining the buy-in of some or most students occurred because of the more active role students were made to play in their learning when FCM was implemented; participants expressed that some or most students preferred a passive role. The challenge of gaining parent buy-in was associated with the novelty of the FCM and the reluctance of some parents to accept a new method about which they

had not been adequately informed. The challenge of gaining administrator and fellow-teacher buy-in was also associated with the novelty of the FCM and the resistance of some teachers and administrators to experimenting with a method with which they were unfamiliar.

Research Question 4. Research Question 4 was the following: What necessary resources do secondary teachers perceive important for successful implementation of the FCM? Theme 3, *resources and tools*, was used to answer this question. Teachers indicated that the successful implementation of the FCM required them to use software and video lessons. Software, which teachers found helpful in successful FCM implementation, included Google Classroom, Hapara, Ted Talk, PowerSchool Learning, Quizlet, Camtasia, Google Drawing, Vimeo, CueThink, Bit.ly, Screencastify, Twitter, and Canvas. Teachers indicated they could make their own video lessons or obtain pre-made videos. Obtaining pre-made videos required teachers to be flexible in their lesson-planning, as they could only exercise a curator's control over ways in which the content was presented. Making their own videos required teachers to have access to hardware and software for video production, to be comfortable with making imperfect videos, and to have a means of entering graphics and/or annotations into the film.

Summary

The purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary flipped classroom model (FCM) in the United States. To achieve this, one-on-one interviews were conducted with 12 educators, and the same educators participated in one of two focus groups. Data from the interviews and focus groups were analyzed using the three-step method, as described by Miles et al. (2014). Findings indicated that teachers implementing FCM experienced and perceived a need to change their class planning and preparation procedures; to administer frequent assessments of student

knowledge; to gain buy-in from students, parents, fellow teachers, and administrators; and to access and use resources for instructional video production, online assessments, and monitoring of student participation. Benefits of FCM implementation included increased teacher-student rapport and student engagement with the curriculum, easily differentiated instruction, and the realization of student potential through a method that made them active participants in their own education. Chapter Five includes interpretation and implications of these findings.

CHAPTER FIVE: CONCLUSION

Overview

More than half of American students completing high school are not adequately prepared for college, thereby placing future American citizens' quality of life and economy at risk (DiBenedetto & Myers, 2016; Moreno et al., 2016; Shuptrine, 2013). Developments in technology lead to different workforce demands that necessitate teachers to adopt different teaching methodologies to prepare the 21st century students for work in a fast-developing environment (Tucker, 2014). In preparing students for the future, teachers must purposefully plan lessons to include relevant skills (Kivunja, 2015), such as applying problem-solving and critical thinking to real-world issues. Researchers have developed different approaches to teaching innovation; one is the FCM, which offers an alternative approach to educating students (Alismail & McGuire, 2015).

The purpose of this qualitative transcendental phenomenological study was to explore the perceptions and experiences of secondary teachers regarding the implementation of a flipped classroom method (FCM) in secondary classrooms in the United States. A total of 12 individuals, experienced in the implementation of the FCM, participated in personal questionnaires, personal interviews, and a focus group meeting. Phenomenological researchers explore the lived experiences of individuals who experience the phenomenon. In-depth explorations of the participants' perceptions of the FCM provided rich descriptions and through analysis five themes were identified to answer the research questions. Overall, although participants experienced challenging situations with implementing FCM, participants stated the benefits outweighed the challenges.

The findings of this study may lead to secondary administrators and teachers adopting and implementing the FCM in their schools and classrooms. This research may alert teachers to possible challenges when implementing FCM and provide pointers about ways in which to manage challenges. The best practices identified by participants can serve as evidence for future adopters of the FCM in secondary classrooms, thus helping to ensure success. School principals may benefit from this research by not only being informed about the challenges of the FCM for teachers but also by gaining insight into the successes of the approach and the need to become an advocate for FCM when dealing with parents and other administrators.

This chapter provides a summary of the findings, a discussion of the findings, and the implications regarding the relevant related and theoretical literature. In addition, methodological and practical implications are explored together with an outline of the study delimitations and limitations. Finally, recommendations for the application of findings and recommendations for future research are discussed.

Summary of Findings

This section will provide a concise summary of the findings as they relate to the research questions.

Research Question 1

Research Question 1 asked the following: How do secondary FCM teachers describe their lived experiences from implementing the FCM? The first two themes apply to Research Question 1, namely (a) changes to planning and preparation and (b) FCM best practices. Changed preparation and planning imply that teachers need to educate themselves on the FCM by finding books and other types of information on the method. Thorough knowledge of the method is needed for ensuring the best way to implement the FCM in classrooms.

Teachers described the differences in planning and preparation when adopting the flipped classroom approach. When first embarking on the FCM, teachers needed more time to plan and prepare class activities. Each lesson must be planned and accompanying video material be recorded or located on the internet. Class activities differed from those in traditional teaching because more time was available, requiring teachers to plan activities and carefully ensure that the students were constructively occupied during class. Teachers emphasized the need to introduce students to the new approach and teach them how to use the technology and time to their benefits. Ill-prepared students might not benefit optimally and become disruptive in FCM classes. Informing parents about the FCM played an important role in successful classroom implementation, as parents who did not understand the process might be skeptical and negatively influence their children.

The FCM best practices discussed by the participants included (a) frequent assessment and feedback to students to create awareness of their strengths and weaknesses, where teachers also benefitted from assessment results in identifying students' areas of competency and need for more information; (b) differentiation opportunities through FCM means that students could progress at their own pace, where teachers must provide extra material to enrich the learning experience for students and to fast-track those who needed less repetition; (c) the availability of information in different formats and inclusion of different learning activities benefit students' different learning preferences, which further enhanced their learning experience; and (d) different classroom management strategies, such as group and individual activities together with one-on-one time with the teacher, benefitted all students. The group problem-solving opportunities gave students a chance to share insights and work together toward the solution of the problem.

Research Question 2

Research Question 2 asked the following: What benefits, if any, do secondary teachers describe from implementing the FCM? Theme 4 related to the second research question, as it addressed the benefits of implementing the FCM. An important benefit was that the students enjoyed learning in an active manner. The FCM approach brought students and teachers closer together, which benefitted the teacher-student relationship and rapport. This benefit was mainly because teachers had more time to spend with individual students, leading to better rapport and appreciation for the student as a person. The second benefit pointed to opening the student's potential as students received the opportunity to participate actively in the learning process and could mot just sit and hide while the teacher lectured. The more students were involved in the learning process, the better they performed. Students were more interested and engaged during class as they participated in different activities with peers, making learning meaningful and fun. The participants reported that over time, students became more positive about the FCM, which could be seen during both informal feedback and formal surveys of teachers on students' perceptions of FCM. Another advantage was that the FCM allowed students to learn at their own paces. Students in need of repetition had control over how many times they used the reteaching possibilities of the FCM. The availability of additional enriching material could benefit certain students. Conversely, students who learned at a faster pace benefitted from enrichment, as well, along with the possibility to move ahead of the group.

Research Question 3

Research Question 3 asked the following: What challenges, if any, do secondary teachers describe from implementing the FCM? The fifth theme applied to Research Question 3, as it addressed challenges to implementation of the FCM. The main challenges constituted the people

factor, as the novel approach must be accepted by students, parents, administrators, and peers. Some students became used to an inactive role during the traditional teaching method and were opposed to the more active role they must assume during the FCM. When study material became more challenging, students tended to blame the teaching approach for their difficulties, not realizing that the nature of the learning material might contribute to the difficulties.

Adequate information as to how the new approach worked, what it asked from the student, and what the benefits were must be provided to the parents. Some parents were reluctant to accept such a novel approach to teaching, which could negatively influence the students. Similarly, administrators and teacher peers might display reluctance to adopt or appreciate the FCM way of teaching. As per Rogers's DOI model (2003), some professionals might belong to the late majority or be laggards who might never adopt the FCM. Individuals who were late adopters might want to wait until all problems associated with the approach were solved before attempting use. Laggards tended to stay with the status quo and do not wish to adopt new approaches. In overcoming administrators' reluctance to adopt the FCM, teachers could be more successful with the support needed for the approach.

Research Question 4

Research Question 4 asked the following: What necessary resources do secondary teachers perceive important for successful implementation of the FCM? Theme 3 dealt with the resources and tools needed to successfully implement the FCM. These included video lessons and other software. Fortunately, in the modern society, there were many software tools that could be used free of charge. The software the teachers used included Google Classroom, Hapara, Ted Talk, PowerSchool Learning, Quizlet, Camtasia, Google Drawing, Vimeo,

CueThink, Bit.ly, Screencastify, Twitter, and Canvas. Most of the teacher participants indicated that Google Classroom was a versatile tool when implementing the FCM.

Although there were video lessons available on the Internet, teachers mostly preferred to make their own video recordings. A challenge in making one's own videos was that one could want to be perfect, thereby using too much time for taping one lesson. In making one's own videos, hardware and software access was needed, as well as the skills to record, edit, and add graphics and/or annotations to the video. Teachers should be willing to learn from their students about what they preferred in videos—several teachers related that shorter videos were more appealing to their students. Should more teachers of the same school use the FCM, they could assist one another in making videos. Excellent videos are available on the Internet; however, because the teachers do not have control over the content and presentation, they need to be flexible when planning lessons and accompanying activities, such as assessments or quizzes.

Discussion

The purpose of this qualitative transcendental phenomenological study was to describe secondary teachers' experiences implementing a secondary FCM in the United States. Experiences and perceptions of secondary school teachers who implement the FCM can benefit those who are hesitant to adopt a new way of teaching. By implementing the FCM, teachers enable students to learn at their own paces and to collaborate in group learning activities that prepare them for the 21st century workplace (Bhagat et al., 2016; Birbal & Hewitt-Bradshaw, 2016; Chen et al., 2014; Davies et al., 2013; Fautch, 2015). An active classroom is needed for 21st century education, and the FCM is an appropriate approach to make the action happen (J. Bergmann, personal communication, February 9, 2018).

Researchers have found that the FCM is rooted in a constructivist approach to learning, whereby teachers promote collaboration and self-regulation of students to incorporate critical thinking and 21st skills into the classroom (Birbal & Hewitt-Bradshaw, 2016; Hao & Lee, 2016; Kurt, 2017; Shaffer, 2016). For the active classroom to be successful, teachers must continually rethink approaches to teaching and implement modern learning environments conducive to all types of learners (Patti et al., 2012). The time it takes a teacher to prepare a new classroom delivery may create reluctance in moving one's classroom to the FCM (Brenner & Brill, 2016).

In describing their experiences of implementing the FCM, the participants emphasized need for changes in planning and preparing for classes. This finding confirms the notion that planning for active classrooms is challenging, as student-centered activities, such as group projects to enhance students' understanding, take more effort than lecturing to students (Breslow, 2010; Long et al., 2016a). Teachers who master the didactic techniques to facilitate learning in a stimulating and interesting manner are vital to students' educations (Ertmer et al., 2014). Teachers need the ability to integrate cognitive learning skills into the curriculum, thus enabling students to solve problems based on thorough understanding of learning material (Alismail & McGuire, 2015). Such contributions to the classroom are based on teachers' abilities to plan lessons carefully and a deep understanding of subject material and the students.

Students use multiple modes of media and the right cognitive conditions to discover their passion in education (Kivunja, 2015). Student-centered instruction is used to cultivate the active learning environment (Armbruster et al., 2009) and shifts the focus from what the teacher provides to what the student receives through results (Peabody, 2011). Students in the 21st century need teachers to provide a climate that relates meticulously to their methods of learning, which includes differentiation that is engaging and motivating (Kivunja, 2015).

Differentiation is a notion that researchers have explored for some time, regarded it as a way to enhance student engagement and achievement (Kivunja, 2015; Kurt, 2017). With the development of technology and its increasing availability, one can use differentiation to enhance differentiation in activities, such as problem-solving, collaboration, and critical thinking (Jacobsen, 2001). This study finds that using differentiation in the flipped classroom is a best practice, which confirms the importance of differentiation in teaching and also extends knowledge by focusing the attention on using differentiation in flipped classroom settings.

In line with differentiation is the finding that increased one-on-one teaching becomes possible with implementation of FCM. This finding was complemented by identifying the use of group work as a best practice. Clark (2015) averred that the FCM optimized class time compared to traditional teaching. By viewing material before class and engaging in group work, added time is available for one-on-one time with students (Ellis-Monaghan, 2010).

Student engagement is enhanced through FCM implementation (Gross et al., 2015), which lessens classroom distractions (Sajid et al., 2016) and optimizes class time (Gross et al., 2015). This engagement allows teachers the opportunity to spend one-on-one time with students to enhance their learning and clarify any misunderstandings (Gouia & Gunn, 2016). Students tend to ask questions more readily when they are alone with the teacher, which allows them to take an active part in their learning. Group work or collaboration is, per definition, part of the FCM (Birbal & Hewitt-Bradshaw, 2016; Fautch, 2015).

By watching online videos before classroom sessions, the in-class time is used for activities, such as collaboration. Collaboration is enhanced by setting challenging tasks, where students should work together to find solutions (Jarvis et al., 2014). Van Sickle (2016) found that a culture of consistent teacher feedback elicited reciprocal feedback between students, which

further enhanced active learning. The finding that identifies collaboration (group work) and one-on-one teaching as one of the best practices confirms the scholarly literature.

Differentiation in the classroom also gives teachers time to build rapport with students through this one-on-one time. Differentiation was a benefit uncovered by Theme 4. Findings that appeared from this theme indicated that participants perceived the benefits of FCM implementation as (a) rapport and enjoyment, (b) opening up students' potential, and (c) students learning at their own paces.

While teachers provide differentiation to help students in the classroom, students themselves must take responsibility for their own learning to ensure time for this to occur (Gouia & Gunn, 2016; Sajid et al., 2016). By watching the videos on their own time and on their own devices, time is saved by having students watching videos before class, and this extra time benefits both students and teachers (Gouia & Gunn, 2016; Sajid et al., 2016). Students may prefer using video technology, especially those who are often absent due to sports or illness (Herreid & Schiller, 2013; Long et al., 2016b). Another benefit of the FCM stems from collaboration, as students with different abilities support one another to understand the work. Empirical evidence of 21st century work related skills that are enhanced by FCM include improved critical thinking and integrating technology in the classroom (Hwang et al., 2015; Kong, 2014, O'Flaherty & Phillips, 2015).

In their discussion of what opening up students means to them, the participants mentioned active participation and taking responsibility for their learning. This finding shows confirmation with the literature, in which Yavuz-Mumcu and Cansiz-Aktas (2015) discussed an active learning environment when using the FCM, as characterized by students enjoying the class environment and using their own time to watch the videos (Armbruster et al., 2009; Jarvis et al.,

2014). In the FCM, teachers encourage students to take responsibility for their own learning and to assist peers (Graves, 2008). This approach is more important than just using technology (Mesh, 2016). Teachers can use the FCM to encourage students to partake more in classroom activities together with an increase in interaction among peers and teachers (Gross et al., 2015; Sajid et al., 2016).

Using videos, which can be repeated by students, the FCM allows students to work at their own paces and to take control of their learning (Davies et al., 2013; Gross et al., 2015; Long et al., 2016b; Sajid et al., 2016). However, failure to watch videos before class may stem from students' lack of self-regulation and taking responsibility for their learning (Van Sickle, 2013). This behavior may lead to frustration in both student and teacher, as well as decreased quality of the teacher-student relationship (Van Sickle, 2013). This failure in doing preclass work may be rooted in students' not being able to access the Internet at home (Child Trends DataBank, 2015) and their poor note-taking skills (Butzler, 2016).

Teachers need resilience to convince students of the benefits of the FCM and completion of preclass work (Lai & Hwang, 2016). However, one must convince students of the importance of self-regulation (Michalsky & Schechter, 2013; Su et al., 2016). Another barrier in successful implementation of the FCM is teachers' ability and time to produce videos (Sajid et al. 2016; Schultz et al., 2016). Another time-consuming activity is the need to provide consistent feedback, as opposed to occasional feedback used in traditional classes (Van Sickle, 2016).

The findings of this study corroborate the findings of previous researchers, stating that students' motivation and self-regulation to do preclass work is somewhat lacking. However, the perceived reason for this neglect differs. In this study, the teachers ascribed failure to comply with the FCM responsibilities to not being informed and not understanding the process by either

the students or students and their parents. This finding serves to extend the literature. Furthermore, the participants' perception that peers' and administrators' lack of insight in the nature and benefits of the FCM can lead to frustrations has also not been thoroughly discussed in literature.

The need for ICT literacy skills is confirmed by P21 (2016) when referencing skills needed to survive in the 21st century. The P21 authors discussed the importance of technology knowledge and skills in students, but they did not mention teachers' need to acquire these skills; however, this was not the topic of their research, which explains why this aspect was not addressed. The findings of the current study extend the current literature by highlighting the importance of teacher education regarding the FCM knowledge and understanding of what it takes to implement student-centered teaching.

Teachers must invest in the FCM process and understand that using videos alone will not refine in-class instruction (Ertmer, 2005; Ruggiero & Mong, 2015). Teachers must ensure that technology strengthens the classroom, instead of weakening instruction (Ellis-Monaghan, 2010) and links the classroom with real-world experiences to be beneficial (Pierson, 2001; Ruggiero & Mong, 2015; Stobaugh & Tassell, 2011). Researchers have also pointed out that implementation of the FCM should be done with care to enhance the learning situation (Ellis-Monaghan, 2010; Kivunja, 2015; Veeramani et al., 2015).

An active classroom is needed to properly educate students in the 21st century. The FCM can help facilitate 21st century needs, thereby giving teachers the ability to integrate education and real-life experiences. Using technology and differentiation, teachers can increase one-on-one time with students in the classroom, thus allowing the remaining students to work collaboratively on group projects. Not only does this build rapport with students and raise their

confidence levels, it also allows students to take control of their own learning, which produces students who are more prepared and ready for the current workforce.

Implications

Theoretical Implications

The theory guiding this study was Rogers' (2003) DOI theory. As explained in Chapter Two, researchers can use this theory to examine the processes involved with the spread of an innovation or idea in a specific social system. DOI was utilized in this study to facilitate the analysis of technology acceptance and adoption patterns of teachers (Zayim et al., 2006). One can use Rogers' (2003) DOI theory to uncover certain implications in a secondary FCM, such as attributes of innovation, decision process, and the adopter categories.

Rogers' (2003) attributes of innovation shows that teachers must see a relative advantage, compatibility, complexity, trialability, and observability to adopt an innovation. When FCM teachers are not surrounded by others who use the methodology, these attributes can be affected. Involving non-adopting peers and administrators in the implementation of FCM can create difficulties for all stakeholders. While it was not impossible to implement a school-wide methodology to the FCM, this research showed most teachers are alone trying to flip their classrooms within their school, thereby turning to social media, specifically Twitter in this research, to collaborate with others who use the FCM approach. Within participants' buildings, peers and administrators do not always provide support and understanding. Therefore, as Rogers' (2003) stated, the Internet has changed the way diffusion of innovations is occurring throughout a society. One wanting to use the flipped classroom approach no longer needs to be in a building with other teachers who flip their classrooms, but simply part of a larger group.

The second step in Rogers' (2003) DOI theory is the decision process. The decision maker for or against the innovation can vary. In this research, all participants felt some level of support from their administration, but each made an independent decision to flip and continue to flip their classrooms. Rogers (2003) stated that people reinventing the innovation would adopt at an increased speed. Reinvention was visible in this research, as each participant transformed the FCM to best meet their needs within their classroom. In fact, all are still reinventing and trying new approaches and activities every year. Collaboration among their FCM network helps improve and spread the innovation, which can help motivate and inspire others within each building through observability and trialability.

Adopter categories, the third part of Rogers' (2003) DOI theory, became visible in this FCM research. The FCM is still a fairly new approach to the active classroom, therefore naming the adopter categories of the participants as either early adopters or early majority. Six participants in this study, those who have been practicing for six or more years, are considered early adopters. The other six participants could be considered early majority.

The findings of this study show the participants' tireless efforts to renew their teaching in favor of a student-centered approach to benefit the students in years to come. By being early adopters and/or early majority, the participants found ways to sustain the classroom changes, even when peers and administrators expressed doubt. They also recognized the need for teaching students about the FCM approach and involving their parents, even though this was not described fully in the literature. This finding indicated the participants' abilities to innovate when facing need.

The findings of this study showed a number of extensions to literature that could be followed and explored further. One of the extensions is how to involve non-adopting peers and

administrators in the implementation of FCM. While it is not impossible to implement this approach uniquely at any given school, the implementation has challenges and obstacles when peers and administrators do not provide support and understanding. Combined efforts from all staff members will not only be easier to potential adopters but can also result in a school wide approach where multiple classes adopt the FCM. Teachers already using the FCM can unite in providing district workshops to expose peers and administrators to the FCM.

Early and early majority adopters who are aware of the DOI can join forces with potential adopters wanting to implement the FCM and help with implementation to suit their classroom needs. There is a need for customized software tools that can easily be modified and implemented in the FCM classroom. Early and early majority adopters are skilled in the technology aspects and can share their knowledge about these tools to identify the specific software needs of the prospective FCM teacher to create tailor-made solutions.

Empirical Implications

Developing and promoting a student-centered approach to teaching has been shown to be of benefit to future workers in the 21st century. Ongoing research on a large scale is needed to establish exactly which skills are required in the different work sectors, colleges, and universities. The fast-developing world of technology implies that the desired skills of today may not be found as important years from now due to innovations in technology. Therefore, one must stay updated on developments and future needs through research and abstracting the essence of the identified skills. In the flipped classroom, teachers have to identify practical problems through which students' problem-solving skills and critical thinking abilities can be developed. Ongoing research in this field will assist teachers to identify situations and challenges that can be used in the classroom setting.

Practical Implications

Practically, an implication of this study was that the FCM implementing teachers must initiate and maintain communication with students and parents about the method. This aspect should include information on ways in which the approach differs from the traditional lecturing style and why this change is needed. One must point out the benefits of the FCM in the short- and long-term, as well as ways in which how these tie into the needs of the 21st century workplace. As an active student-centered approach to teaching, students and parents must realize that their roles will change. Depending on the audience, teachers can expose parents to what the FCM entails and ways in which parents can support their children at home. This aspect may be best achieved by exposing parents to a sample class, where they can participate in problem solving, how to support students, or what skills that students may need in their future work environments or colleges.

Similarly, community partners, such as employers, can be involved by indicating what skills they expect employees to possess when entering the workplace. By involving community partners in identifying desired skills in the work environment, teachers, students, and parents will have the opportunity to ask pertinent questions to future employers. In embarking on such an exercise, the need for a different approach to schooling will become more real to everyone involved. This approach to fact finding may convince teachers, students, and parents who are either late adopters or prefer a passive approach to schooling to embrace the FCM with its need for their increased involvement in classroom activities.

Similarly, local school district leaders can launch information sessions and workshops using successful FCM teachers to assist in facilitating the sessions. By informing teachers and administrators of the FCM principles together with practical sessions, those who may be part of

the late majority or laggards may find themselves willing to adopt the FCM in their classrooms. This willingness will then serve to prepare more students adequately for higher education and/or careers.

Having to plan differently and make videos is challenging. Not all teachers have the technological skills to do this task. Hands-on training sessions, where teachers can learn from those who are successful in this area, will equip them with the knowledge and practical know-how to embark on making their own videos. Following on the workshops to teachers and administrators, school principals may realize the need for purchasing video equipment, which teachers can use for making classroom videos. When more than one teacher has learned the skills needed to make and edit videos, they can assist other teachers to become more familiar with the techniques of producing videos.

Delimitations and Limitations

Delimitations constitute the decisions of the researcher that limit or define the boundaries of the study. This study was delimited to exploring the perceptions and experiences of secondary teachers implementing a FCM in secondary classrooms in the United States. Previous researchers have mostly explored implementing the FCM at college or university level (Basal, 2015; Wanner & Palmer, 2015). I have successfully implemented the FCM at the secondary level and found that few school peers ventured to utilize the FCM in their classrooms. Due to its success in my teaching practice, there seemed a need to establish the perceptions and experiences of other secondary school teachers, which could serve as pointers for the implementation of the FCM in secondary schools. By delimiting the research to secondary schools in the United States who openly discussed their practices on social media, specifically Twitter, I found a key group of highly skilled FCM teachers who collaborated often and were highly successful in the approach.

Although I aimed to include the widest range of participants regarding demographic characteristics, it was equally important to consider their experiences with FCM for this phenomenological study.

The choice of a qualitative approach was made based on the purpose of the study, as the aim was to identify and explore the lived experiences of secondary school teachers who were implementing a successful flipped classroom. By limiting the study to a qualitative methodology, the generalization possibilities of findings were compromised, as the sample was limited to 12 participants. By deciding to focus on the lived experiences of the participants, I explored the phenomenon of implementing a successful secondary FCM in depth.

Limitations of a study include those elements beyond the researcher's control. A notable limitation of this study was in the self-reporting nature of phenomenological explorations. Although one could assume that the volunteering participants reported their experiences truthfully, they could have inadvertently underreported the challenges or overstated positives of implementing the FCM. Therefore, the findings of this research were limited to the degree to which the participants were open and honest about their experiences with implementing a successful FCM.

A further limitation was found in the participants volunteering to partake in the research. I found it unclear why some individuals would volunteer to participate and others with the same experience and characteristics did not volunteer. I assumed that the volunteering participants were interested in sharing their experiences. However, all participants taught science, math, or history. No other subject areas were represented, which was a limitation. All participants were White/Caucasian, which was another limitation.

Recommendations for Future Research

Educators and teachers should focus on preparing secondary students for a successful work life in the 21st century. The traditional lecture style approach has not always been successful, as researchers found that approximately 66% of secondary school graduates are not adequately prepared for college of university (DiBenedetto & Myers, 2016; Shuptrine, 2013). This finding seriously impacts the future success of students in society and their possible economic and social contribution as future citizens of the United States. The following recommendations for future study are made based on findings of this study.

Using the findings of this study, one can develop a questionnaire to conduct a larger quantitative study. In determining to which degree other secondary teachers implementing a FCM have similar experiences pertaining to—for example—the need to inform parents of the FCM principles, a project can be launched nationwide. In undertaking a large effort informing parents and students of the FCM, teachers' jobs will be made easier, thereby leaving them to focus on planning lessons and making videos.

A study can be launched to involve future employers in the identification of desired skills in different employment sectors. This future study can assist educators to develop practical problems. Students can solve these problems by teachers enabling them to develop the needed skills and insight into everyday challenges.

Adapting to a FCM can be challenging for all stakeholders: students, teachers, administrators, and parents. Gaining buy-in is important to being successful in this type of active 21st century classroom, as it is different compared to the learning method of which most stakeholders are familiar. A study can be conducted to follow the FCM students return to traditional classrooms after the year(s) in FCM classrooms. This future study can help determine

if the skills gained are truly valuable and/or potentially lost after not continuing in an FCM classroom.

Further researcher can also consider administrators' perceptions of their FCM teachers. Another possible future researcher can consider teachers who have flipped their classrooms and decided against the process. Either of these studies will bring more information to the overall FCM experience.

Summary

This study focused on the lived experiences of teachers who have been implementing a FCM. An exploration of current literature provided insight into the successes and challenges of classroom flipping; however, it did not provide substantial evidence of this practice in secondary schools, as most of the research was done in tertiary education. According to different researchers, classroom flipping delivers positive results (Ashby et al., 2011; Birbal & Hewitt-Bradshaw, 2016; Bruff et al., 2013; Clark, 2015; Du & Wu, 2013; Enfield, 2013; Long et al., 2016b; Tawfik & Lilly, 2015; Wanner & Palmer, 2015). Researchers have also reported the positive perceptions of teachers regarding adopting the FCM (Long et al., 2016a; Ruggiero & Mong, 2015; Wanner & Palmer, 2015).

The rationale for adopting the FCM in secondary schools occurs because a large percentage of students are not ready to enter college after graduating from secondary school. This finding indicated a different approach to teaching should be adopted to ensure students' active involvement in their own learning. The technologically advanced study and work environment of the future necessitates integration of technology with the curriculum and optimizing of classroom time to facilitate maximal student benefit (Birbal & Hewitt-Bradshaw, 2016; Enfield, 2013; Vaughan, 2014). One approach that provides active, student-centered

learning is the FCM. This method invites students to participate on different levels in peer groups or at an individual level through active engagement with the content and applying their knowledge in problem-solving and critical thinking activities (Forsey et al., 2013; Pluta et al., 2013; Teo et al., 2014).

The FCM principles are not always easy to grasp and implement. Strategic planning, extensive readjustment of lessons and teaching focus, together with ongoing monitoring to implement the FCM, is needed (Birbal & Hewitt-Bradshaw, 2016; Della Ratta, 2015). Teachers have undertaken private study to develop the insight and skills needed to implement a successful FCM in secondary classrooms. Given the success and effort that teachers invest in initiating this methodology in their classrooms, I found it unclear why some did not sustain the effort.

The theoretical framework adopted for this study was the DOI theory of Rogers (2003). Researchers can use this theory to explain the processes involved in adopting and disseminating innovation or novel ideas within a social system, such as education. According to Rogers (2003), teachers should focus on advantageous systems that would make change worthwhile. Therefore, one must determine whether the advantages of the FCM equal or outweigh its implementation challenges, which could be leveraged to sustain the implementation.

The findings of this study indicated that teachers who successfully implemented the FCM did not want to go back to the traditional teaching method. They wanted to invest their personal time, resources, and skills to implement and maintain this teaching approach, as they found it successful and worthwhile. The challenges they encountered included informing students, parents, peers, and administrators about the approach, as it differed significantly from the traditional lecture situation. The FCM was time-consuming, especially in the initial phases, as teachers have to plan lessons extensively, make videos, and design various kinds of assessments

to keep abreast of students' progress. Regular feedback was needed to inform students of their achievement and alert them to the areas that needed special attention. This approach encouraged students and teachers to become co-responsible for students' learning and engage students in meaningful ways to gain knowledge and insights, which was then utilized during practical application in everyday problem solving. Without the skills necessary to partake in the 21st century work environment, students and the larger society would not perform to their potential.

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APPENDIX A: IRB APPROVAL

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

January 30, 2018

Jami S Weidmann
IRB Approval 3093.013018: Secondary Teachers' Perceptions of the Flipped Classroom Model

Dear Jami S Weidmann,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

[redacted]

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

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APPENDIX B: QUESTIONAIRRE

1. What is your gender?

   ☐Male ☐Female ☐I prefer not to state

2. What is your role in your school? Check all that apply.

   ☐Teacher

   ☐Administrator

   ☐Other: Please specify: Click here to enter text.

3. For what state and school district do you teach?

   Click here to enter text.

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

   Click here to enter text.

5. What grade(s) do you teach? Check all that apply.

   ☐6th Grade

   ☐7th Grade

   ☐8th Grade

   ☐9th Grade

   ☐10th Grade

   ☐11th Grade

   ☐12th Grade

   ☐Other. Please specify: Click here to enter text.

6. What is your age?

☐20 – 29

☐30 – 39

☐40 – 49

☐50 – 59

☐ 60 and over

7. What is your ethnicity?

☐African American/Black

☐Caucasian/White

☐Hispanic/Latino

☐Multi-racial

☐Asian

☐American Indian/Alaskan Native

☐Other. Please specify: Click here to enter text.

8. Have you transitioned your classroom to a flipped classroom model?

☐Yes ☐No

9. If yes to question 10, at the end of this school year, how long will you have run a flipped classroom environment?

☐This is my first year

☐I am in my 2nd year

☐3 – 5 years

☐6+ years

10. If yes to question 10, do you use your own videos for students to watch prior to class?

    ☐Yes

    ☐No

    ☐I mix it up

11. The researcher my permission to audio-record and/or video-record me as part of my participation in this study.

    ☐Yes

    ☐No

12. Would you like to participate in this study?

    ☐No

    ☐Yes; If yes, please provide the following

    Name: Click here to enter text.

    Date: Click here to enter text.

    Phone: Click here to enter text.

    Email: Click here to enter text.

Thank you for your participation in this questionnaire. Please remember that your participation in my study is completely voluntary and you may withdraw at any time. If you have any questions, I can be contacted at xxxxxx@liberty.edu or by text/call at xxx-xxx-xxxx.

Sincerely,

Jami Weidmann

Liberty University Graduate Student

APPENDIX C: CONSENT FORM

Participant Consent Form
Secondary Teachers' Perceptions of the Flipped Classroom Model
Jami Smith Weidmann
Liberty University
School of Education

You are invited to participate in a research study that is seeking to describe the perceptions and lived experiences of secondary teachers regarding the implementation of a Flipped Classroom Model (FCM) in secondary classrooms in the United States. You were selected as a possible participant because you have at least one year experience with using a FCM. Please read this form and ask any questions you have before agreeing to be in the study.

Jami Weidmann, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this phenomenological study is to describe secondary teachers' experiences implementing a secondary FCM in the United States. The following questions will be researched: (a) How do secondary FCM teachers describe their lived experiences with the FCM? (b) What benefits, if any, do secondary teachers describe from implementing the FCM? (c) What challenges, if any, do secondary teachers describe from implementing the FCM? (d) What necessary resources do teachers perceive important for successful implementation of the FCM?

Procedures: If you agree to be in this study, you are asked to do the following things:

1. As the participant of the study, you will complete a questionnaire online. This should take approximately 5 minutes.
2. As the participant of the study, you will complete an individual interview with the researcher. This interview should take approximately 45 minutes and will be audio and/or video-recorded.
3. As the participant of the study, you will be asked to review the transcripts of your interview to ensure for correctness. This process should take 15 minutes.
4. As the participant of the study, you will be asked to take part in a virtual focus group where you will discuss the Flipped Classroom Model with other participants. This process should take no more than 45 minutes and will be audio and/or video-recorded.
5. As the participant of the study, you will be asked to review the transcripts of the focus group to ensure accuracy. This process should take 15 minutes.

Risks and Benefits of the Study: There shall be no risks or harm associated with this study greater than what the participant would experience through regular daily life. There will not be any direct benefits to the participant for participating in the study. Society may benefit from teachers learning about another method to prepare 21st century students, as society expects teachers to seek research-based approaches to teaching.

Compensation: Participants will not be compensated for participating 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 I 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. After three years, all electronic records will be deleted.
- Interviews will be audio 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 virtual focus group will not share what was discussed with persons outside of the group; however, I can ensure use of pseudonyms during the group sessions.

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 Jami Weidmann. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at xxxxxxxxxx@liberty.edu or xxx-xxx-xxxx. You may also contact the researcher's faculty advisor, Dr. Reginald Kimball, at xxxxxxxxxxl@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 1887, Lynchburg, VA 24515, or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information to keep 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.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

☐ The researcher has my permission to audio-record and/or video record me as part of my participation in this study.

_____

Signature Date

_____

Signature of Investigator Date

APPENDIX D: OPEN CODING RESULTS

Data Condensation/Open Coding Results for One-on-One Interviews

Code	Number of participants contributing to code (*N*=12)	Number of data elements included in code	% of data elements included in code (*N*=252)
bit.ly	1	3	1.19%
Camtasia	1	1	0.40%
classroom management	4	4	1.59%
constant tweaking	3	3	1.19%
content-lesson planning	7	11	4.37%
Cue Think	1	1	0.40%
differentiation	4	7	2.78%
flipped grid	1	1	0.40%
formative assessment tools	2	2	0.79%
Google classroom	6	9	1.19%
group and one-on-one time	4	6	2.38%
Hapara	1	1	0.40%
hyperdocs	1	3	1.19%
iBrain free	1	1	0.40%

improving on implementation	10	14	5.56%
knowing where kids are	4	6	2.38%
LMS	1	1	0.40%
make it matter	4	5	1.98%
mastery-student scores	6	6	2.38%
opens up potential	5	10	3.97%
own pace	6	9	3.57%
parents	2	2	0.79%
peers-admin	2	2	0.79%
preparing parents-students	5	14	5.56%
question forum	1	2	0.79%
rapport and enjoyment	8	18	7.14%
redo and review	2	2	0.79%
Seesaw	1	1	0.40%
self-prep	4	5	1.98%
student direct feedback	3	3	1.19%
student resistance	9	16	6.35%

Twitter	1	1	0.40%
video lessons	10	15	5.95%

Note. "% of data elements included in code" is taken out of all data elements across all data sources, including focus groups and individual interviews. Codes are listed alphabetically for ease of reference.

Data Condensation/Open Coding Results for Focus Groups

Code	Number of focus groups contributing to code (*N*=2)	Number of data elements included in code	% of data elements included in code (*N*=252)
Buncee	1	1	0.40%
Camtasia	1	1	0.40%
classroom management	2	6	2.38%
depth of learning	1	4	1.59%
Dosary App	1	2	0.79%
Ed Puzzle	1	1	0.40%
formative assessment tools	1	2	0.79%
free vs paid access	1	2	0.79%
Google classroom	1	2	0.79%
grading-assessment	1	2	0.79%
hyper docs	1	3	1.19%

Learning Management Systems	2	2	0.79%
opened up potential	2	6	2.38%
own pace	1	4	1.59%
parent buy in	2	17	6.75%
Recap-Flipgrid	1	2	0.79%
student resistance	2	5	1.98%
teacher-admin buy in	2	6	2.38%
Video lessons	2	5	1.98%

Note. "% of data elements included in code" is taken out of all data elements across all data sources, including focus groups and individual interviews. Codes are listed alphabetically for ease of reference.

APPENDIX E: THEME FORMATION RESULTS

Data Display/Theme Formation Results

Theme (in **bold**) or code contributing to theme (in *italics*)	Number of sources contributing to theme (*N*=14)	Number of data elements included in theme	% of data elements included in theme (*N*=252)
Theme 1: Changes to planning and preparation	14	46	18.25%
classroom management			
content-lesson planning			
preparing parents-students			
self-prep			
Theme 2: Best practices	14	48	19.05%
constant tweaking			
knowing where kids are			
make it matter			
question forum			
redo and review			
student direct feedback			
differentiation			
group and one-on-one time			

Theme 3: Resources and tools	14	63	25.00%
Buncee			
Camtasia			
Dosary App			
Ed Puzzle			
formative assessment tools			
free vs paid access			
Google classroom			
hyper docs			
Learning Management Systems			
Recap-Flipgrid			
bit.ly			
Camtasia			
Cue Think			
flipped grid			
formative assessment tools			
Google classroom			
Hapara			

hyperdocs			
iBrain free			
LMS			
Seesaw			
Twitter			
Video Lessons			
Theme 4: Benefits of implementation	14	47	18.65%
opens up potential			
own pace			
rapport and enjoyment			
Theme 5: Gaining buy-in	14	48	19.05%
teacher-admin buy in			
parent buy-in			
student resistance			

Note. "Number of sources contributing to theme (N=14)" includes two focus groups and 12 one-on-one interview participants.