Implementation Evaluation Study: Flipped Classroom Professional Development with Faculty Members to Enhance Students' Engagement in Higher Education

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IMPLEMENTATION EVALUATION STUDY: FLIPPED CLASSROOM PROFESSIONAL DEVELOPMENT WITH FACULTY MEMBERS TO ENHANCE STUDENTS’ ENGAGEMENT IN HIGHER EDUCATION

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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December 2016
This Dissertation by: Fatimah Hussain Alebrahim

Entitled: Implementation Evaluation Study: Flipped Classroom Professional Development with Faculty Members to Enhance Students’ Engagement in Higher Education

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in College of Education and Behavioral Sciences in Department of Educational Technology

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ABSTRACT

Alebrahim, Fatimah H. Implementation Evaluation Study: Flipped Classroom Professional Development with Faculty Members to Enhance Students’ Engagement in Higher Education. Published Doctor of Philosophy dissertation, University of Northern Colorado, 2016.

The purpose of this qualitative study was to explore student engagement in higher education by evaluating training provided by experienced faculty members for those faculty desiring to implement a flipped classroom. A case study was utilized; data were collected in the form of online observation, in-class observation, student focus group interviews, faculty individual interviews, and artifacts. The researcher used the utilization-focused evaluation (Patton, 2008) as an implementation evaluation framework for the study. Data were analyzed using deductive analysis that depended on five implementation evaluation elements as general components (effort, monitoring, process, component, and treatment specification). The participants in this study included three trained faculty members from three different disciplines (anthropology, sociology, and business) and 14 students from these three faculty participants’ classes. The findings indicated faculty experiences of successful implementation of a flipped classroom were related to whether these faculty members fully provided the main flipped classroom elements for the lesson or only tested a partial implementation. Faculty and student perceptions of student engagement were positive and supportive of the idea that the flipped classroom enhanced student engagement. Students who experienced all the elements of the flipped classroom in the lesson extended their engagement from just in-
class activities to embedded online activities. The findings also provided valuable recommendations from faculty and student participants related to improving student engagement in the flipped classroom. The study presented limitations of the study and recommendations for future research. Generally, this qualitative study with all the resources used to collect the data reflected successful practices and components of flipped classroom examples that could benefit educators in terms of enhanced student engagement.
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CHAPTER I

INTRODUCTION

Successful teaching happens when the primary effort of the instructor focuses on the needs of the students. Success occurs when significant learning experiences result in increases in students’ class performance as well as their ability to use that knowledge in other situations. According to Lee Fink (2013),

The basic meaning of this kind of learning is understanding and remembering. Any sustained effort to learn about any topic, subjects, or activity will almost inevitably require students to acquire a basic understanding of particular data, concepts, relationships, and perspectives, as well as the ability to recall this knowledge in the future. (p. 36)

The National Research Council (Kober, 2015), in their latest publication “Reaching Students: What Research Says About Effective Instruction in Undergraduate Science and Engineering,” stated educators have reasons for searching for more effective instruction models to implement in the classroom instead of the traditional instruction model. This decision was not merely subjective. By making a decision to change the teaching approach, an instructor can affect the entire learning process for the students and impact the future of teaching.

Evidence from research on teaching and learning and teaching in science and engineering suggested a large part of the problem lies in the way these courses are traditionally taught--through lectures and reading assignments, note-taking and memorization, and laboratories with specific instructions and a predetermined result.
Educators who are looking to improve their teaching will first evaluate the course and themselves during the semester. They will consider different ways in which students gain successful outcomes from the course. The important question for educators is: does the current teaching approach result in the students gaining the required skills from the course? If students do not meet minimal objectives required for the course, educators should begin the process of changing the instructional model to one that can be used to create successful results.

In the 21st century, educators and students do not want to engage in a passive learning model using a traditional approach. Instead, they prefer a more active learning approach to the teaching and learning process. Active learning is now a process that creates a positive learning impact (Bergtrom, 2011). Researchers now consider the meaning of active learning and the terms related to it. The list varies regarding some terms that are included in the concept of active learning. Learner engagement, engagement environment, significant engagement, and student active collaboration are a few examples of included terms (Coffield, 2008) but no matter what the specific terms are, active learning translates to students who are not passive. Students learn through doing and being engaged in the process through the use of many types of learning materials.

In addition, in the past few years, the use of technology in education has become significant in active learning. Educators have integrated a variety of technology tools in settings from elementary to higher education to improve teaching and learning with positive results for both students’ outcome and faculty teaching (Adrian-Hollier, 2015). Successful instructors are more apt to follow the latest research about teaching and
learning (including the use of technology) and try to implement it in their classes. 
Current trends in higher education indicate the traditional style of teaching is changing to integrate more technology into teaching practices.

Since the late 1990s, web-based instructional technologies such as Blackboard, videos, and PowerPoint have become more frequently used. Indeed, instructors have worked to update their teaching styles in order to make their class time more effective for students. Instructors have gone from presenting lectures to using varied activities and different technology tools. However, some instructors are still afraid they will lose course content if they apply any learning technology tools during class time (Lage & Platt, 2000). Therefore, educators and researchers who want to improve the teaching environment using the advantage of technology have tried to enhance classes by blending traditional face-to-face with online delivery of their courses. The name of this blended style of teaching has become known as the flipped classroom.

According to James, Chin, and Williams (2014), flipped or inverted classrooms are also known as one form of blended learning. The flipped classroom is classified as one of the pedagogical methods related to blended learning practices that work to flip or invert traditional teaching methods. This method focuses on providing a media lesson to the students that must be completed outside of the classroom and prior to the class after which the teacher demonstrates different activities related to the media lesson during class time. This strategy relies on technology to introduce students to course content outside of the classroom so students can engage with it on a deeper level (Strayer, 2012). This method works in two steps: (a) before class time, students should access the materials provided online and be knowledgeable about them; and (b) during class time,
students work on applying activities and discussing the content with the instructor and peers. These activities include group projects, problem-based learning activities, experiments, class presentations, online reading assignments, and participation online in group forum discussions (Strayer, 2007).

The main concern in education is how to teach students equally if students’ abilities to learn are widely differentiated in the classroom. Most educators agree about the differentiation in students’ abilities to learn because not all students can learn the same way and in the same timeframe. These differences in teaching styles and learning expectations for students can cause a decrease in retention by losing students’ attention and interest (Borg & Shapiro, 1996). Educators utilizing traditional teaching methods spend most of the time explaining content under the pressure of class time; this method does not allow educators to focus on each student’s needs effectively. Thus, the flipped classroom developed as a response to this problem.

According to Strayer (2012), the inverted classroom (flipped classroom) is a new model or trend in pedagogy that has emerged in higher education over the past few years; it has seen an increased mixture of face-to-face classroom experiences with online learning experiences from the distributed learning tradition. As result of this trend, the flipped classroom method has become one of the top educational trends in research because flipped classroom methods allow students to learn at their own pace and educators can focus on different styles of teaching provided by media and help students rehearse information by applying different types of activities to match different students’ learning styles.
Many educators try to implement the flipped classroom method in their classes but the ways they approach that implementation are varied and unequal in terms of success. Some educators implement flipped classrooms by getting expert advice from reading about it and preparing materials by creating lesson plans in the form of media and activities. Some implement it by using other educators’ materials that relate to their topics. Others publish their successful experiences in related journals to transfer it to others. Finally, some volunteers create forums specifically for the flipped classroom method to educate others, to answer questions, and to share materials or even offer online workshops for educators who are interested in the online approach. Today, the biggest non-profit online community for flipped classroom educators that is helping a wide range of educators is called the flipped learning community (Flipped Classroom Community, 2016).

November and Mull (2012) reviewed Twitter postings to learn what educators said were the downsides to implementing the flipped learning method. They found five major misconceptions:

1. *Flipped learning reduced the importance of the instructors in class.* In actuality, however, when using the flipped learning model, instructors have the opportunity to engage in more meaningful work with students to raise their level of knowledge by supporting the lectures with more resources. They are also able to prepare a unique and individualized lesson plan before each class with questions directly from the students to assist them in engaging in deeper levels of critical thinking.
2. *Students watch boring videos or useless material.* In actuality, students no longer have to watch boring videos in class or read useless materials as the instructors in this situation are able to streamline the content the students watch and read and allow them to do so on their own time.

3. *Student have difficulties accessing the Internet.* In cases when the student must miss class, using technology such as Adobe Connect allows instructors to record all of the class interactions and permit students to watch the discussions in an effort to make up their work. Students also have more options on how and where they will view and participate in the class. Students can use the school or public libraries to use computers to connect to the Internet or they can ask the instructor to provide the materials on DVDs.

4. *Teachers and students are not accountable.* Accountability of both the student and the instructor actually increases in flipped learning. Both parties are made more responsible for preparing for the class by doing the assignments, activities, and watching the media requirements outside the classroom, which in turn increases the quality of in-class experiences.

5. *Teachers have difficulty providing videos that match with the lecture.* Instructors using the flipped learning model do not need to create videos for their classes but rather can utilize relevant and applicable media sources. It would, however, be highly advantageous if school administrators would provide ways to make it easier for a greater number of instructors to use videos consistently between sections by creating a master media library of
current and relevant sources. This is why the flipped learning model seems to be an effective way in which to provide options for students. Through this method, students are able to choose the time and way they view and read the course materials. A goal of the instructor is for the students to get the best possible outcome by allowing them to choose and then discuss course materials online and before class. Class time can then be used to apply acquired knowledge and explore content in more detail (Lage & Platt, 2000).

There is evidence that instructors whose classes have transferred to the flipped classroom have gained greater understanding of the material (Brown, 2012), which supports the validity of this model of classroom learning. Conversion of the class to a flipped learning model increases understanding by allowing students enough time in class to practice essential skills under the watchful eye of the instructor. However, this evidence pointed out the challenges of determining which teachers or instructors would be best suited to teaching with this model. For those who were not well suited, it was necessary to provide guidance and assistance in learning how to teach in this radically different way. They would need professional development to master it effectively.

Very few studies focused on educational settings that provide professional development for educators to apply the flipped classroom model to understand the perceptions of the effectiveness that training has on the students’ performance. Since the innovation of flipped classrooms is a recent development that is highly dependent on having skills and familiarity with technology, teachers need professional development to implement this method correctly.
Dennison (2013) conducted a study to examine factors that assisted in the adoption of technological innovations aside from time, money, and other resources. Two surveys were taken from both faculty members and university personnel in information technology. Subsequent results showed professional development and training not only were a top priority by faculty and information technology professionals but also a second priority for executives and administrators.

**Description of the Study**

This study focused on faculty members’ implementation of the flipped classroom in higher education settings using an evaluation process developed by Patton (2008). By choosing an evaluative method and analysis in this study, I wanted to improve, adjust, and provide action goals for flipped classroom implementation, which would help future educators who wanted to implement the same or another similar program. Patton’s idea was to evaluate programs for the purpose of knowing if the program’s implementation operated in the correct way according to the main design before judging the outcome by failure or success related to the program. Patton provided steps and checklists to help novice and experienced evaluators evaluate any program. There are different steps to evaluation—beginning with implementation and ending with initial findings—that can help with interpretation and reporting. The focus of this study was on implementation evaluation regarding implementing flipped classroom methods by training faculty in their classes and that training’s effectiveness on student engagement.

**Statement of the Problem**

Even with integrated different types of technology in the classroom, there are still educational issues related to student learning. A major issue of educators is related to
how students can become more engaged during the class period. Different factors affect student engagement in the learning process including teacher support, quality of instruction, peer connections, and classroom structure and management (Clark, 2013).

In a recent study, Johnson-Smith (2014) compared two types of instruction (technology-enhanced instruction versus traditional face-to-face instruction) to find how they affected student engagement. Although the results supported technology-enhanced instruction as the better method with which to enhance student engagement, Johnson-Smith also found using technology required skills from the educators to employ practices and activities that would be more beneficial to enhance student engagement.

In the same way, the flipped classroom method works by taking advantage of integrated technology by using it as a tool that presents prior knowledge to students and works in the classroom to transfer that knowledge to practice. Because some educators are not effectively prepared to apply the flipped classroom method in their classes, they have unsuccessful stories. Educational institutions are falling behind in helping educators become prepared to implement flipped classrooms or even to decide if they want to apply the method. There is no official support for educators to apply flipped classrooms as an effective method of instruction.

According to Gilboy, Heinerichs, and Pazzaglia (2015), implementation of the flipped classroom by expert educators is connected to improving student engagement, learning, and satisfaction. However, educators who attempt to implement flipped classrooms without training might reduce the effectiveness of the flipped classroom method. This fact led to the necessity of offering professional development to educators to gain skills and knowledge important for the creation of a suitable environment to
increase student engagement in the classroom. To ensure the professional development is effective, educators align what was learned from the training with the successes of their implementation.

Powers, Shin, Hagans, and Cordova (2015) discovered the impact of providing professional development training to teachers and its effect on student engagement. They found for any educational setting looking for better student engagement linked to successful outcomes, teachers needed to be provided training to help them experience different types of activities that increase student engagement in the classroom. However, very few studies have addressed an evaluation of professional development for educators to apply the flipped classroom method and the perception of effectiveness of that development in light of students’ engagement.

To ensure successful implementation of the classroom approach, evaluations of trained faculty members need to be provided with sufficient resources and support to carry out this implementation. Currently, there is a gap in our understanding of how and in what manner professional development contributes to successful implementation of educational innovations from the evaluation viewpoint. Additionally, some issues affect the implementation process of the flipped classroom. These common issues can help us compare the study results of professional development to ascertain the effectiveness of the training. Crawford (2015) maintained three issues could impact flipped learning implementation: (a) faculty familiarity of flipped learning instruction and technology, (b) faculty responsibility for the course workload, and (c) direction and organization of the course schedule.
Purpose of the Study

The intent of this evaluative case study was to discover the effectiveness of implementing the flipped classroom with trained faculty members in higher education settings for the improvement of student engagement. If the flipped classroom method is implemented effectively from trained faculty, we expect a learning environment to develop that encourages increased student engagement and creates a new vision of students with deeper, more independent thinking processes.

The purpose of this research study was to uncover the aspect of the flipped classroom from different views and its relationship to student engagement. First, I wanted to know how the faculty members experienced the implementation after having had professional development. Second, I wanted to help future administrators and faculty view perspectives of both faculty and students in terms of the flipped classroom and student engagement. Finally, I wanted to provide recommendations that would suggest solutions to improving implementation and success of the flipped classroom method in higher education.

Research Questions

My research topic was the perception of the effectiveness of professional development using trained faculty members in flipped classrooms to enhance student engagement in higher education. The following research questions guided this study:

Q1 How do faculty members who had professional development experience the implementation of flipped classroom environment?

Q2 How do professors perceive student engagement in a flipped classroom environment?

Q3 How do students perceive student engagement in a flipped classroom environment?
Q4 What recommendations can be provided to improve student engagement in the flipped classroom?

**Significance of the Study**

Schwerdt and Wuppermann (2011) found if teachers used a different type of classroom instruction without being concerned about correct implementation, the change might result in a failure to address students’ knowledge, skills, and engagement. Thus, more studies are needed to provide a better understanding of the effectiveness of professional development in teaching new methods and providing the skills needed for that teaching. This study examined the implementation of flipped learning through faculty and students’ perceptions by using their experiences as additional evidence with which to consider students’ learning and engagement as important factors.

According to Gilboy et al. (2015), “Students in flipped classes more often reported that instructors consistently encouraged active student engagement and learning compared with a traditional class” (p. 110). Faculty members and administrators in higher education who are concerned about improving student engagement might find this research study important as they make plans to change the instructional model toward implementing the flipped classroom. In addition, they might use the findings of this research study to plan training programs for faculty members (especially for new employees) to use the flipped classroom method as a primary teaching model.

**Assumptions**

For the purposes of this study, there were two assumptions:

1. Each trained faculty participant would have a different management plan in implementing the flipped classroom in their classroom. Especially for those who were implementing this method for the first time, the course type and
content level would affect the plan. Strayer (2007) provided some evidence that flipped classrooms could be more effective for specific classrooms and courses than others. In this study, some instructors fully implemented flipped classroom methods throughout their entire course, while other instructors chose single classes with content suitable for flipped instruction.  

2. I believed flipped learning could provide different activities that could support the enhancement of student characteristics and make students’ learning more effective. For instance, one of the activities flipped classrooms use often is a group activity in which students collaborate with other peers to learn. However, some students prefer to work alone. A previous study claimed students who experienced flipped classroom instruction in their courses learned to be social by working within a group and increased their confidence (Clark, 2013).

**Definition of Terms**

The following key terms were used in this study:

**Blended learning**--A type of teaching instruction offering flexibility of teaching methods. The model mixes two types of teaching: online and face-to-face delivery sessions. The teacher can decide how those types are mixed using different factors such as course content or students’ needs (Harig, 2015).

**Flipped classroom**--An educational method that provides students with media lessons that must be completed outside of the classroom and prior to class. This is a two-step process that requires students to access academic media outside of the classroom and then discuss and apply that content with the professor in the
classroom. The goal of this method is to increase students’ ability to not only comprehend but also to integrate the information. Flipping is “a concept in which they invert traditional instruction so students use what used to be homework time listening to lecture and moving what used to be homework into classrooms” (Flipping Classrooms, 2012, p. 3).

**Professional development**--A type of training that has the specific purpose of changing or adding desired behaviors or skills for both the organization and for each employee (Popescu, 2013).

**Student engagement**--Skinner, Wellborn, and Connell (1990) defined student engagement as one of the important factors in student learning to help them develop better academic outcomes by getting higher grades, successfully achieving goals, and building their personal and social communication. Moreover, Fredricks, Blumenfeld, and Paris (2004) stated student engagement happens in three aspects: behavioral engagement happens when students actively participate during the class activities, emotional engagement happens when the students react negatively or positively about the learning process, and cognitive engagement happens when students have the ability of gaining a higher level of understanding through scaffolding.

**Traditional classroom**--An instructional method of teaching that happens when the teacher and students meet face to face. The interaction happens face-to-face between the teacher and students. During the class, time is spent on the teacher presenting the lecture while the students listen. At the end of the class, questions are asked and teachers assign students homework (Komarinski, 2015).
Utilization-focused evaluation--Michael Quinn Patton (2008) is the founder and director of the utilization-focused evaluation. According to Stufflebeam and Shinkfield (2007), utilization-focused evaluation is identified as a recognizable approach used in evaluation. It is defined as “a process for making choices to guide an evaluation study in collaboration with a targeted group of priority users, selected from a broader set of stakeholders, in an effort to focus effectively on their intended uses of evaluation” (Stufflebeam & Shinkfield, 2007, p. 214).

Summary

Traditional classrooms that ignore rapid technological innovations are not attractive to this new generation of students. The flipped classroom method is one that uses different technological strategies to integrate learning with technology and hopefully makes teaching and learning more engaging. As a researcher, I believe evaluating and conducting more studies about this method would help a variety of school levels and subjects learn how to implement the flipped classroom method effectively.

The flipped classroom instructional model is clearly worth considering if educators are teaching a class or are a school administrator. Despite the challenges and questions remaining about this model, the potential of flipped classroom as an effective alternative to traditional classroom teaching seems to be substantial. Its design serves to solve a number of serious problems that arise in the classroom when teaching is practiced in the usual way. Perhaps it will turn out that some classes lend themselves better to flipped classroom than the traditional model, while the use of traditional models may be more appropriate for other courses. The model is relatively new compared to the hundreds of years we have been teaching in the traditional way. Given that educators are
always striving to improve student understanding and performance, it is important to remain open to new ideas such as the flipped classroom.

Implementation of the flipped classroom method is not easy to address simply by reading articles. It depends on technology first and requires preparation from the teacher before the class to assign different activities. It needs skill to administer and group students; all that is not easy to do. Therefore, I believe preparing and training teachers for this method would create a great experience for teachers and their students. Offering workshops and support from schools for their teachers before applying the flipped classroom could result in more confidence for teachers to integrate this method and gain support from other trainers.
CHAPTER II

LITERATURE REVIEW

In this chapter, I provide a literature review that explains different concepts related to flipped classroom implementation. First, I discuss the flipped classroom concept including implementation experiences and implementation effectiveness of that type of classroom. Second, I discuss faculty members’ perceptions of changes toward instruction-based technology. Third, I discuss the concept of student engagement and how it relates to a flipped classroom model. Finally, I discuss the evaluation framework used in the study.

Flipped Classroom

At the emergence of any new instructional model of teaching, special attention should be given to in-depth study of the model and its impact on student learning. The flipped classroom is one of the unique instructional models to recently emerge in higher education. Enfield (2013) stated flipped classrooms might become the ideal instructional model to use in teaching for the current education system. According to Estes, Ingram, and Liu (2014), the flipped classroom has the potential for helping students accomplish their learning with meaningful results in their outcomes and to help educators spend more effective use of class time. This section focuses on present research articles about flipped classrooms by providing evidence that will help educators in higher education make informed decisions.
**Flipped Classroom Background and Definition**

The beginning of the flipped classroom idea started in the 1990s. Novak, Patterson, Gavrin, and Enger (1998) joined together to present their new project idea to improve teaching. Novak was from the physics department and Patterson was from the Air Force Academy. Their project was focused on using a teaching strategy of creating a collaborative learning setting utilizing the World Wide Web. They were displeased with having computers and the Internet but not using them to support education. They developed an effective strategy to use the availability of technology—Just in Time Teaching. The plan for this strategy of teaching was to positively impact students’ critical thinking, problem solving, and estimation skills.

Novak, Patterson, Gavrin, and Christian (1999) defined Just in Time Teaching as a sequence of two steps based on classroom experience that encourages an active learning strategy with the use of computers and the Internet. Novak et al. (1998) described their strategy and how it worked. The students first have to read a short assignment in which they have to submit the answers through the Internet before class time starts. These assignments are based on the same content as the class lecture. The professor then checks the answers from the Internet and reviews them to share important points and integrate related activities to discuss in class. Collaborative discussion among the students is the main purpose of the method. Students meet in the classroom with the faculty and if the class size is large, two faculty members or graduate students would be needed to assist. The class starts with a brief review of the assignment while focusing on problem solving strategies. Then students are divided into groups to demonstrate a problem-solving activity under supervision of the professor as a guide. Students are
taught to be independent in learning and solving the problems and improving their communication skills that in turn lead to increased student engagement and attendance in class (Novak, 2011).

The history of improving teaching by using technology continues to improve while the flipped classroom rises in the teaching field. Flipped classroom concepts started in 2006 when two chemistry teachers in a Colorado school noticed they had similar ideas and collaborated to prepare lessons to make teaching easier and more efficient (Salifu, 2015). They realized a common problem in their rural school was absenteeism from the classes because of sports and other activities, leading to a subsequent struggle to catch up with missing lessons. An idea came to them when one of them found an advertisement about software that had the function of recording and converting lessons to video (Salifu, 2015).

The chemistry teachers put this software to the test by recording themselves while lecturing in the class and then posting the video online with easy access for students (Salifu, 2015). Absent students found these videos very helpful and other students were interested in seeing these videos before an exam for review. Because of the open accessibility to the videos, they received complimentary feedback from students and teachers from other schools noticed and wanted to use the videos. At the end of 2007 and the beginning of 2008, the flipped classroom idea was born out of concern for students needing more in terms of explanations of concepts they did not understand (Salifu, 2015). The two teachers in Colorado switched their routine by instructing their students to watch the video of the lecture before class and then apply the concepts of the lecture to
experiments and activities. Thus, the results of the implementation the first year of flipped classrooms appeared (Bergmann & Sams, 2012).

By distinguishing flipped classroom as an instructional model in teaching, many educators conducting research studies attempted to discover more about this model. Educators and researchers made efforts to define the flipped classroom model from their experiences and share the results of their studies. Therefore, the vision of the flipped classroom became seen as a model containing two stages of teaching: the first stage was having an online lecture before class time and the second stage was to have face-to-face meetings and activities supporting the mastery of the related concept (Salifu, 2015). In addition, flipped classrooms were being defined as a combination of synchronous and asynchronous learning for the same lesson (Hawks, 2014). Overmyer (2015) stated the flipped model has taken one ineffective method (face-to-face lecture) and simply integrated technology to move the problem outside the class by offering the lecture online. Carbaugh (2016) described the flipped classroom idea as using technology to present the recorded lecture to students online--students watch the lecture at home, review the same content in class, and utilize practice to comprehend and retain the information. Also, Wiginton (2013) stated the flipped classroom instructional model strategy for integrating technology is “to move lecture to asynchronous home viewing, freeing up valuable class time for more active learning strategies and advanced problem-solving projects” (p. 173).

From the previous definitions, by making the decision to implement flipped classrooms, professors in higher education have advantages of integrating technology and keeping pace with 21st century trends. These trends include acknowledging students as
the technology generation, allowing more flexibility of the learning and teaching process so important information will not be missed, helping the student to access the content knowledge at any time, and providing support for changing student attitudes so a student can be more of a self-learner and the classroom is learner-centered (Carbaugh, 2016).

Implementation of the Flipped Classroom

The increased popularity of the flipped classroom method encourages educators to implement it further. Chellapan and van der Meer (2015) stated, “Increasing numbers of teachers in higher education are considering implementing this model in light of the perceived benefits of a more active engagement of students in their learning” (p. 352). Implementation of the flipped classroom for online materials gives the flexibility of creating different structures of necessary content for the professor. The required on-line quizzes after watching the video of each lesson have helped increase the rate of students’ commitment to completely watching the video (Enfield, 2013). With regard to another recent study, Snowden (2012) argued

Because of the nature of the flipped classroom, it is perceived more positively by teachers who typically use lecture as the primary means of content delivery. Those teachers who have a more interactive, discussion-oriented means of content delivery do not perceive this method as beneficial to their classroom. (p. 52)

In a recent study, Davies, Dean, and Ball (2013) stated the flipped classroom model is better than the traditional approach. There are courses requiring a basic background about some software, such as Excel or Photoshop, before the student can participate in the class. Nevertheless, there are always some students who lack this background or who do not really understand the software. They usually need some additional practice in using the program or they will do poorly in class activities. In
traditional instruction, even if teachers offer “tutorials” as remedial work, students tend to start out behind the others and stay there. However, flipped learning solves this problem by routinely offering practice and instructions from the software, providing the opportunity to practice at home at one’s own pace. This feature of flipped learning has led to greater understanding and satisfaction on the part of students.

The Flipped Learning Network (2014) released 11 guidelines for educators who are planning to implement the flipped model:

1. Establish spaces and time frames that permit students to interact and reflect on their learning as needed.
2. Continuously observe and mentor students to make adjustments as appropriate.
3. Provide students with different ways to learn content and demonstrate mastery.
4. Give students opportunities to engage in meaningful activities without the teacher being central.
5. Scaffold these activities and make them accessible to all students through differentiation and feedback.
6. Prioritize concepts used in direct instruction for learners to access on their own.
7. Create and/or curate relevant content (typically videos) for the students.
8. Differentiate to make content accessible and relevant to all students.
9. Make yourself available to all students for individual, small group, and class feedback in real time as needed.
10. Conduct ongoing formative assessments during class time through observation and by recording data to inform future instruction.
11. Collaborate and reflect with other educators and take responsibility for transforming your practice. (p. 1)

Challenges

Professors planning to implement the flipped classroom process have to put in the effort of preparing materials, creating videos, and designing quizzes for each lesson, which will take longer than preparing the class activity (Enfield, 2013). In addition, ensuring the connection between the online and in class activity is an important component of implementing a successful flipped classroom (Galway, Berry, & Takaro,
Three main challenges occur when implementing a flipped classroom in higher education:

**Technology challenges.** Challenges may exist in terms of the use of technology by students and faculty members. It cannot be taken for granted that students have easy access from their home. Therefore, faculty members have to make sure students have a way to access materials from home or at the university. Another challenge is created by students who have not adopted technology in the learning process. This challenge might cause resistance and discomfort by those students, thus affecting their academic performance. Faculty barriers appear when faculty members have no experience in using technology and integrating it in their teaching; this lack of experience might cause instructors to feel less confident and reluctant to implement the flipped classroom in their teaching. In addition, faculty might be more comfortable with traditional teaching methods. For some faculty, their interest and motivation for changing their ways of teaching are low. It is not the priority of these faculty to follow a trend by integrating new models or integrating technology to see if better results occur for students.

**Institutional challenges.** There may be challenges for flipped classroom implementation related to the higher education setting. Implementation might not occur if the institution is unfamiliar with the concept of flipped classrooms as an emergent model in teaching and faculty members who support the model are absent. Another challenge might be university faculty and staff feeling the pressure of their workload and being unwilling to implement flipped classrooms in their settings. In addition, a most important challenge for faculty comes from lack of university support for professional development to prepare them for this type of learning as well as a lack of collaboration
between university administration and faculty by not offering training for the model and any related components.

**Pedagogical challenges.** Even with the number of research studies about the effectiveness of the flipped classroom in student outcomes, still other studies view it as a lack of resource support and are waiting for more evidence and proof this instructional model should be implemented in the academic system. In addition, some faculty prefer to support their lessons by using existing videos because of the lack of guidance on how to create videos that could effectively support the lesson. Furthermore, the flexibility and variety of using activities in the flipped classroom instruction might cause some students to feel unskilled compared to their previous experiences. The flipped classroom requirement of watching and reading materials before the class and being active during class time could result in some students who do not prepare adequately becoming passive during the learning process.

**Effectiveness of Flipped Classroom Implementation**

The primary purpose of implementing flipped classrooms in higher education is to apply the model and have effective results from that application. However, the flipped classroom instructional model is a complex model containing different components that must be implemented to achieve effective results.

According to Clark (2015), implementation of flipped classrooms improves the professor’s instructional quality and the mixture of different type of activities used for each class, thereby enriching the effect of the instruction. Enfield (2013) also stated flipped classrooms reduce the time spent in explaining the content to those who miss class for any reason. One of the reasons for choosing the implementation of flipped
classrooms as an instructional strategy in teaching is to build students’ confidence in their abilities to learn individually. Asking students to answer questions after watching a video is more effective than taking notes (Enfield, 2013). It is also more effective to review content by asking students to recall the information instead of the professor providing the answer directly. The strength of flipped classroom implementation comes from designing class activities related to what students learned from the online materials (Enfield, 2013). In addition, Galway et al. (2015) shared some ideas in preparing different scaffolding strategies in flipped classroom components that would affect student performance and attitudes toward implementation of the model. Furthermore, Snowden (2012) mentioned a particular benefit of flipped learning--feedback the students receive for their work is direct and follows immediately after they have finished their work under the teacher’s supervision. This quick feedback is reassuring for students who have had a great deal of experience with technology in their lives and have come to expect it.

Faculty Members’ Perceptions Toward Change to Instruction-Based Technology

Current research identified adoption and implementation of instruction-based technology by faculty members in higher education as being related to faculty perspectives and attitudes toward acceptance of technology use in teaching (Mahdizadeh, Biemans, & Mulder, 2008; Scott, 2013; Yuen & Ma, 2008). In addition, perspectives about usefulness, ease of use, and technology teaching efficacy play an important role in faculty members’ use of any instructional online learning tools in their teaching (Wong, Teo, & Russo, 2012). Other factors found to influence faculty members’ use of technology tools in their instruction included gender (Scott, 2013) and, most importantly,
whether or not this instruction-based technology supported larger pedagogical goals (Zhao & Cziko, 2001). Scott (2013) presented a qualitative, longitudinal study of one university faculty member’s change in beliefs about instruction-based technology as the instructor transitioned from strictly face-to-face delivery methods to incorporating a learning management system. This study identified changes in the faculty member’s beliefs as being an important aspect of implementing instruction-based technology in the university setting. Scott drew relatively few conclusions about the benefits and drawbacks of such technology tools but seemed to have a generally positive view toward them. At any rate, faculty members’ changing beliefs are important for understanding how universities can provide sufficient support for faculty members; faculty members should be encouraged to reflect on and discuss critical unmet expectations about their teaching.

The development of using instruction-based technology for learning is a process based on experience and repetition. Longitudinal studies are useful for measuring and understanding faculty members’ changes in belief about technology. Investigation regarding faculty members’ perspectives about implementing instruction-based technology has only begun relatively recently. Straub (2009) cited faculty members’ beliefs and opinions about some technology tools used in instruction as important in understanding the impact of the use of those tools. Straub cited numerous research, showing the subject of many investigations was to determine how and why an individual implemented instruction-based technology in teaching. Straub also asserted it is not a new method or strategy itself but the perception of newness that influences the way a person feels about that method or strategy. This was in line with Scott’s (2013)
description of faculty members who unwillingly decided to begin working with instruction-based technology tools. The faculty members were reluctant in part because of the newness of the technology.

There might be a connecting link between self-efficacy and perceived usefulness in determining to use technology tools in instruction; Wong et al. (2012) found women teachers had lower feelings of self-efficacy than men with regard to technology tools. Furthermore, Yeung, Lim, Tay, Lam-Chiang, and Hui (2012) found a positive correlation between faculty members’ confidence in their ability to use technology in learning situations. The faculty member in Scott’s (2013) study attributed frustration with the complexities of the university’s e-learning tools to the inability to figure out how to use them. Frustration is directly related to one of the reasons faculty members perceive themselves as having a low level of expertise in the field of technology. This provides a very clear link between faculty members’ beliefs and their use of e-learning tools in teaching instruction.

Faculty members’ perspectives are closely related to their choices regarding curricula, materials, and practices (Song & Looi, 2012). Song and Looi (2012) specifically tried to determine how faculty members’ beliefs affected their practices in relation to technology support. They concluded that faculty members whose beliefs led them to accept innovation had more of a tendency to embrace technology-based learning tools. Scott’s (2013) changing faculty member’s beliefs study was in regard to faculty members reconsidering their ability to use technology in teaching.

According to Scott (2013), faculty members are likely to change if they have the opportunity to reflect on their experiences and discuss their challenges with colleagues.
Scott also noted faculty members might change if they had a critical need that had not been achieved. If current methods did not provide all they felt was needed to meet their educational goals, a rethinking of beliefs was more likely, especially if this rethinking took place in the presence of colleagues with whom they could discuss the situation.

Ertmer (2005), in discussing the time it took for faculty members to understand new technology and be able to use it well in their instruction according to the ideas of constructivist reformation, placed an estimate of five to six years for a faculty member to be able to fully use and implement new technology in the learning setting. This was significant because while the study did not clearly say what happened in that time period to the teacher’s beliefs, it did invite investigation into why a change in ability would take place.

Stein, Shephard, and Harris (2011) argued overall implementation of instruction-based technology has been slowly adopted. Scott (2013) found personal perspective and lack of acceptable support from the institution slowed the implementation. Stein et al. found the problem with technology acceptance was not a problem of the technology itself but of the people and administration supporting them. They further found as faculty members do not work in isolation, it is important that use of technology tools be helpful not only to faculty members themselves in their teaching but also to student outcomes. A university’s purchase of a learning management system and other technology tools might not be enough; as Scott pointed out, faculty members might feel the tools are beyond their level of expertise and perceived ease of use is low. As Wong et al. (2012) indicated, the technology acceptance model (TAM) requires a number of variables be met for
faculty members to fully adopt the use of new instruction-based technology in learning spaces.

Many possibilities exist for further research in the area of use and implementation of technologies by faculty members in their instruction. Very few studies have been conducted investigating changing faculty members’ perspectives in the adoption of technology tools (Ertmer, 2005; Scott, 2013). The significance of such research is as educators and instructional designers more fully understand how learning technologies are accepted, it could become easier to support faculty members as they learn about and implement the use of those technologies. Public discussion, practice communities, classroom observation, and both technological and educational support could help faculty members to accept the implementation of technology in their teaching (Ertmer, 2005).

The adoption of technology like flipped classrooms would benefit from increased support from universities—teachers being encouraged to reflect on their experiences and unmet critical needs, teachers being helped to understand that technology adoption, and from long-term studies investigating change in faculty members’ perspectives (Scott, 2013).

**Faculty Members’ Perspectives About Flipped Classroom**

The flipped classroom is a new instructional model with a lack of research in different areas that need to be explored. The perception of faculty members toward the model is one of the areas few studies have addressed. In a recent study, Moen and Helgevold (2015) recommended more research regarding faculty perspectives toward the effectiveness of flipped classrooms in organizing teaching and learning processes to ensure academic quality. In addition, Fraga and Harmon (2015) stated,
It is clearly evident that more research is needed about the use and effectiveness of the flipped classroom model of instruction. There are many questions about this instructional model of learning that remain unanswered. Some include the following: “What are the perspectives of teachers who use this model on instruction?” (p. 24)

Faculty members implement flipped classrooms with different goals and purposes in mind (Naccarato and Karakok, 2015). These goals often do not include measurement of student improvement in the class, which is the main purpose of the implementation. Naccarato and Karakok (2015) also mentioned two types of faculty members’ perspectives. The first perspective concerned separating concepts of procedural and conceptual knowledge. In this perspective, the faculty felt the flipped classroom needed to manage components of the classroom by having more procedural skills delivered in the online class materials and videos posted prior to class time. Students should be able to concentrate on higher level of questions or to add more conceptual ideas during the in-class time where they stated they preferred to connect the same concept in the online lecture with in-class activities. On the other hand, faculty members who were not concerned with the separation of procedural and conceptual knowledge, or transfer of prerequisite skills prior to new concepts being introduced to students, viewed the flipped classroom as a chance to advance students’ higher level of thinking and increase their ability to demonstrate cognitive skills.

According to Gunyou (2015), faculty members’ points of view depend on different factors of the flipped classroom:

1. Video lessons-- faculty members’ perspectives are the video part in flipped classroom offers flexibility and convenience for students to watch and complete their assignment.
2. Active learning sessions--faculty members believe active classes lead the students to direct interaction with others, which helps faculty be more organized in their course.

3. Online quizzes--the main concern was the learning management system was missing some tools that would help build online support for student progress or auto grading for the quizzes.

4. Tutoring--this component should be available to faculty members to help answer students’ questions related to the course or help grade students.

5. Student mastery--the faculty perspective regarding this point was flipped classrooms positively agreed with the benefits of supporting students in understanding and applying high cognition for the concepts.

6. Improvement in student engagement--faculty believe flipped classrooms encourage students to avoid absences that impact the ability of flipped classroom to increase student engagement.

Therefore, the conclusion of the faculty perspective was more support was needed to encourage other educators to implement flipped classrooms; this model should be recognized as the default instructional method for teaching.

According to Wanner and Edward (2015), who explored faculty perceptions about flipped classrooms in higher education, faculty members shared concerns about different issues such as time commitment and amount of workload needed to implement flipped classrooms in their teaching instruction, the lack of support in offering professional development to implement flipped classrooms and helping to keep course requirements aligned with deadlines, the lack of students’ ability to be self-learners and to complete
lessons, and the need of guidelines to help create the structure of the course. On the other hand, faculty members believed flipped classrooms positively improved students’ abilities to make appropriate decisions and to be accountable, resulting in effective academic outcomes. Some faculty members considered the flipped classroom to be an instructional model for higher education deserving of more attention because of the evidence of its effectiveness in creating a student environment that engages students (Cresap, 2015).

**Professional Development**

According to Wallin and Smith (2005), for faculty members to be effective in their classrooms, they need to have opportunities to grow in their areas of expertise. Edenfield (2010) expressed the opinion that professors should be supported by having quality instruction about teaching from the university. Wallin and Smith pointed out that in some areas of studies, the teaching material has not changed much over several decades. This lack of change causes boredom among many professors who are tired of teaching the same lessons over and over again. This problem has been acknowledged; however, at times administrators who are trying to improve the development of these faculty in the classroom fail to do so adequately because the administrators pay “little or no attention to faculty assessment” (Wallin & Smith, 2005, p. 87).

However, according to Sunal et al. (2001), the best way to improve professional development is through “workshops, written descriptions of effective practice, the use of expert or peer consultation and mentoring, and involvement in a development process (such as funded course development)” (p. 248). Commonly used methods have been workshops and courses. However, not all these methods may work effectively; it is up to
professors and institutions to find a method that will work efficiently. If the method is done well, then these teachers can “increase their instructional and curriculum-related skills and be able to give top quality lessons to their students” (Wallin & Smith, 2005, p. 94). The main goal is to develop and improve the quality of teaching and learning (Ouimet, 2011).

**Student Engagement**

**Understanding the Nature and Importance of Student Engagement**

Student engagement is the effective participation of students in the learning process in addition to practices, both inside and outside the classroom, which lead to the ability to observe students’ behaviors and outcomes (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007). In simpler terms, this means student engagement is measured by the different ways in which students can interact more, which will benefit them in and out the classroom. Over the years, student engagement has been noted as a significant factor when it comes to higher education; because of that belief, engagement has been highly considered and gradually researched with more evidence to show how vital it is in higher learning (Kahu, 2013). Kuh et al. (2007) noted two important factors involving student engagement. The first factor was the amount of time and effort each student effectively puts into his/her education. The second factor is the way in which the student’s institution manages its resources and plans the curriculum, offers variety in learning choices, and supports and encourages student services. This is all done with the hope each student can reach “desired outcomes, such as persistence, satisfaction, learning, and graduation” (Kuh et al., 2007, p. 44).
To investigate student engagement is not a simple process because many aspects can affect the outcome of engagement or disengagement in students (Zepke & Leach, 2010). Yorke and Longden (2008) stated students’ disengagement could be affected directly by the institution setting providing a low quality of teaching.

There are many ways for professors to create effective student engagement in their classes including the use of the flipped classroom instructional model. It is important to point out students who were in flipped classrooms preferred them if the professor introduced this engagement method at the beginning of the semester rather than in the middle of the semester. This introduction gave students time to get comfortable with and understand the purpose of the method (Clark, 2015). Galway et al. (2015) stated an effective flipped classroom experience included having professors who felt supported and students who were highly engaged played an active role in class sessions. Mearns, Meyer, and Bharadwaj (2007) claimed that when teachers came prepared for their classes and put the students’ needs first, students were more likely to commit, engage, and even work harder in those classes. This model could also help students who do not communicate or interact a great deal in classes be more interactive and social. The outcomes of this method showed students themselves saw an increase in “participation and communication” in their classrooms, which helped promote a more student-focused environment “conducive to learning and success” (Clark, 2015, p. 103). The use of videos made by their professors also helped students engage more in the class (Enfield, 2013) and provided a chance for them to actively engage in course activities (Galway et al., 2015).
Additional ways to increase student engagement are by “challenging students, making students feel comfortable to ask questions and seek assistance, providing feedback, support and encouragement, and setting expectations for students to do their best” (Savory, Goodburn, & Kellas, 2012, p. 18). Zepke (2013) studied what positive qualities helped increase student engagement in higher education. He concluded there was a correlation among (a) students’ efforts, strength of learning, and motivation; (b) teachers and the way they taught; (c) the institution’s way of supporting the learning quality; and (d) the willingness of everyone concerned to connect what is learned in the classroom to the outside world.

**Student Engagement in Flipped Classrooms**

Educators are using flipped classroom in their classrooms because they see the impact it is making in their students’ interaction and engagement (Salifu, 2015). Implementing a flipped classroom as an instructional model of teaching can not only engage students but also improve the way students participate. It helps students go from a less communicative and interactive surrounding to an environment that focuses on fully engaging them in certain activities with other classmates (Clark, 2015). Professors who are more engaged and play a more supportive role for their students have a more effective outcome with the flipped classroom experience (Galway et al., 2015). Flipped classroom instructions establish ways for students to become actively engaged in course activities (Galway et al., 2015). Students prefer having the professor introduce the purpose of the flipped classroom at the beginning of the semester so they can engage and be more comfortable with it (Clark, 2015).
Evaluation Framework

Utilization-Focused Evaluation

Michael Quinn Patton (2008) was the founder of the utilization-focused evaluation (U-FE). The key point of this approach to evaluation is to understand the impact of the implementation of the program (Patton, 2008—to put users and the use under investigation. Likewise, the main goal of researchers who use this evaluation is to provide utility for individuals who want to make decisions regarding implementation of any type of program. Therefore, the main purpose of the U-FE is to state the impact of the program as a guiding framework and to make a judgment of that impact through the utility and actual use rather than the style method and potential benefits.

According to Stufflebeam and Coryn (2014), the U-FE is useful, active, situational, and easy to adapt. Thus, the evaluator can perform different jobs in this evaluation such as being a trainer, negotiator, facilitator, measurement expert, external expert, and analyst. In this research study, I acted as a researcher and evaluator, helping the evaluation become more effective by being an expert in the content of the flipped classroom instructional model.

The U-FE approach can be applied to a variety of settings and contexts for people who want to know in-depth about their program. In addition, researchers using this approach can employ whatever qualitative or quantitative type of data collection method they wish so it rests on researchers to determine the best use of suitable methods to apply in their study. Foundations to interpretation of the findings in this evaluation are based on applying the participants’ actual doing to the knowledge and the information required to determine the main purpose (Stufflebeam & Coryn, 2014). The U-FE can help
researchers start with classifying and understanding the knowledge of the concept for the program purpose and goals, and then continue by linking and interpreting the participants’ uses of the program (Patton, 2008).

According to Patton (2008), qualitative methods are best in U-FE when the purpose is documenting program implementation. In addition, developing a qualitative study depends on personal factors including identifying the needs of the group who personally wants the evaluation. The findings the evaluation generates for others using qualitative methods have proved to be particularly useful in applying this evaluation to other situations. The nature of the case study approach of conducting interviews and/or observations allows others reading the study to discover important factors emerging from the open-ended process (Goodyear, Barela, Jewiss, & Usinger, 2014). According to Patton (1987), “Detailed case studies of these extreme cases may generate particularly useful information” (p. 26).

**Implementation Evaluation**

The concern of this case study was to focus on one of the important forms of the U-FE program evaluation--the implementation evaluation approach. By applying the U-FE implementation evaluation approach, the case study is provided with rich data that specify the content and context of the program. This can be more useful than employing a quantitative method that would evaluate the implementation of the program using static data (Patton, 1987). For this study, I attempted to discover the aspects of student engagement while implementation was being applied to the concept of the flipped classroom instructional model, especially from faculty members in different departments.
in higher education settings who underwent professional development to prepare them for the theoretical and practical issues of the flipped classroom instructional model.

**Implementation Evaluation Components**

Primary components for utilization-focused evaluation implementation are (a) effort evaluation, (b) monitoring evaluation, (c) process evaluation, (d) components evaluation, and (e) treatment specification evaluation. The case study was assessed by these components, which acted as guides in constructing questions for the interviews and the criteria for observations (Patton, 2008).

**Effort Evaluation**

The purpose of effort evaluation is to report any information about activities and resources being used in implementation. This step moves the evaluator from focusing on knowing if the program exists or not to the actual practice of knowing the level of activity, i.e., how often administrators are implementing the program. One sign of the effectiveness of the program is if a program is less active, it will have a less effective result. Effort evaluation is designed to give the evaluator an overall picture of the implementation of the program. This gives the evaluator an initial view of which to start before evaluating a deeper level (Patton, 2008).

**Monitoring Evaluation**

This type of implementation is known as an internal management system. This function is an important step to gathering regular data about students’ participation in a flipped classroom, the rate of completion of the activities required, students’ characteristics, and the extent of the materials used. All of this information helped to follow the progress of the implementation and adjust the program as needed.
Therefore, using management software or hardware was necessary to help faculty members make a decision to solve and manage any implementation problems. According to Patton (2008), “Establishing and using a Management Information System are often primary responsibilities of internal evaluators. External evaluators then audit and draw on the internal data to render independent judgments about how well implementation has unfolded” (p. 324).

**Process Evaluation**

Process evaluation helps to evaluate the reality of program activities and practices to recognize the negative and positive points. According to Larkins (2015), process evaluation is “how the intervention services are working in the eyes of the participants, and how the services work with each other to benefit students” (p. 68). Therefore, process evaluation focuses more on consideration of how the implementation goals of the program are reaching the desired outcomes. According to Davidson (2005), the purpose of the process evaluation is to critically evaluate all things about the program value and quality features without the outcomes. Therefore, the process helps the evaluator describe any failures, successes, or changes in implementation that would help to review and adjust the program for better implementation in the future. The evaluator has to have skills in reporting details of the information that would help provide the implementation program’s clear and original intent for others. Finally, the process evaluation has no limitation in investigating and reporting any context related to the program’s implementation.
**Component Evaluation**

The component evaluation includes utilizing a formal assessment for each different part of the program. Larkins (2015) explains it as “how each individual step of the intervention works independently to provide needed services to students” (p. 68). The strongest and most useful point of the component evaluation is the chance to generalize the findings about the program to another sample. The component evaluation explores and examines the program as units rather than as an overall program. Furthermore, this step of the evaluation process assists others in guiding their implementation by using the same components. It could also help others compare similar and different program components and examine each component’s effectiveness in the implementation of improvement and better practices.

**Treatment Specification Evaluation**

This approach is an intervention for the program implementation. Larkins (2015) defined it as “identifying the level of treatment needed to bring about a specific outcome” (p. 68). The treatment specification evaluation classifies the elements or dosage that can make a difference in a program to increase the program’s effectiveness. In other words, the treatment specification distinguishes the elements that led to the outcomes. In addition, it explains and suggests suitable and useful treatment for the program regarding the way the program should be implemented to improve it in the future. The treatment specification approach is counted as a hard task for the evaluator to do because identifying the elements in the program needed to make the treatment successful is a very complex process and a big responsibility that might lead to the wrong treatment (Patton, 2008).
Summary

The technology revolution has challenged the instructional teaching system in higher education to keep up with trends and be active. The flipped classroom is known as one of the effective models of instruction-based technology that have recently become a discussion topic in research. The concept of flipped classroom occurred in 2006 when two chemistry teachers put their heads together to figure out what could be done differently in their classes for students who were missing classes due to extra-curricular activities. They recorded lectures and put them online for the students and the method gained much popularity from other teachers in other schools. The two chemistry teachers took it a step further by instructing all students to watch the videos before class; then when it was class time, they would have activities ready that would tie in with the lecture. The flipped classroom has gained much recognition since then. Eleven guidelines have been put in place by the Flipped Learning Network (2014) to ensure implementation of this method had a smooth transition for both students and teachers. For teachers who have never implemented this method before, there will be struggles in the form of technological, institutional, and pedagogical challenges. If the flipped classroom is implemented correctly, it should be very effective in keeping students engaged. Teacher perspectives regarding this method have been mixed. But teachers are more willing to try something new if the something old they have been doing is no longer effective for their students. If teachers are encouraged and have the right support from their institution, it will be an easier transition. The main goal of the flipped learning model is to have students interact more in class and have time to fully understand the concept they are learning in class. Flipped classrooms have been shown to impact and improve faculty
members’ teaching qualities and student outcomes. In addition, flipped classrooms ensure in various ways that student needs are met by offering different, quality learning experiences. Therefore, flipped classroom can help change the way students learn and direct the students to be accountable and able to demonstrate long-term knowledge. Faculty members have different perspectives about the changes that will happen by applying the flipped classroom model and they look for support from the university by asking that training be provided to them. There was a gap in the literature of researchers or administrators providing evaluation to assess the effective implementation of the flipped classroom. It is necessary to have an evaluation that can help transfer the faculty member’s experience to other instructors who are trying to implement the model. Finally, the quality of teaching instruction found in flipped classrooms can lead to improvement of student engagement in the learning process. Chapter III details the methodology implemented in this study.
CHAPTER III

METHODOLOGY

Introduction

The purpose of this evaluation qualitative study was to discover how higher education faculty who participated in flipped classroom professional development implemented flipped classroom instruction and improved student engagement in their classes. This study explored three aspects: (a) discovering the implementation process of flipped classroom methodology, (b) understanding the implementation process from faculty and student participants’ perspectives, and (c) collecting recommendations from faculty and student participants for the purpose of improving student engagement in future implementations. This research study explored the following research questions:

Q1 How do faculty members who had professional development experience the implementation of flipped classroom environment?

Q2 How do professors perceive student engagement in a flipped classroom environment?

Q3 How do students perceive student engagement in a flipped classroom environment?

Q4 What recommendations can be provided to improve student engagement in the flipped classroom?

The fundamental purpose of developing the questions in this study was to discover the nature of flipped classroom implementation in higher education. Thus, each question was constructed to cover different components related to flipped classroom implementation. Specifically, the first question provided information and answers for the
study by gaining detailed descriptions about how faculty participants who had extensive professional development training implemented the elements of that training in their classroom. The second question explored faculty participants’ opinions and points of view about their experience in implementing the flipped classroom, its practical use as an instructional model, and how this model affected student engagement. The third question provided in-depth data from the students’ lens that described their experiences and how this instructional model affected their engagement. The fourth question gathered data that provided ways to improve the implementation of flipped classrooms and proffered a unique perspective from both faculty and students’ thoughts.

**Epistemology**

Rescher (2012) defined epistemology, the theory of knowledge, as investigating any related prior knowledge and concepts to understand how they are applied and their associated characteristics. My epistemological view of the student learning process was expressed by constructivism—a theoretical philosophy of learning. Dewey (1916) and Vygotsky (1978) were pioneers of this theory. According to Adams, Cochrane, and Dunne (2012), both Dewey and Vygotsky believed engaged learners constructed knowledge that empowered their understanding and meaning of learning. This construction of knowledge helps students retain information more easily and could be improved by interaction with others (Huang, 2002).

Furthermore, the claim of constructivism is learners are considered to be active learners who seek meaning and share it with others. The constructivist theory explains human learning as an active attempt to construct meaning in the world around us. Thus,
learners through the expression of their perceptions provide meaning regarding their interactions in class about the model of teaching.

In an education setting, one of the foci of constructivism is group work and scaffolding. Lefrançois (2011) explained that in scaffolding, Vygotsky described active learning and techniques that made teachers responsible for providing different activities and practices to support students as they learn. In other words, scaffolding is the process of gradually reducing instructor support as the student gains mastery of the material. Constructivism also focuses on problem-based learning and goal-oriented scenarios. This understanding of constructivism helped me in the current research to explain the flipped classroom and compare it with other instructional models. As previously mentioned in this study, higher education has for the last two decades been teaching using one common instructional model in all different subjects. This model, known as traditional classroom instruction that focused on the instructor as a provider of knowledge, was used in the same way regardless of the course and without student input. Flipped learning is a way to take the focus away from the instructor to refocus on students’ potential for constructing and retaining knowledge.

The traditional classroom method to learn is to have all knowledge and information transmitted by the professor as the expert for teaching content while students subjectively memorize the information being transmitted to them. This way of learning is not constructivist. According to Ishiyama, Miller, and Simon (2015), Dewey was against the idea of repetition and memorizing information as a model where students are to be passive without representing any opinions. Even the climate of the traditional classroom is one sided where all students face the professor. Moreover, the materials depend on
specific references and the requirement of the course is students study those references to pass the class without creating a learning process.

Institutions of higher education are concerned with keeping a positive reputation and attracting more student applicants. The creation of a good learning experience will happen by evaluating the teaching model being used, rethinking how to improve student engagement, and motivating students by using a more effective way of teaching. According to Henning (2015), another important concern in higher education is to support students by keeping them engaged with people around them and gaining best educational practices from the complex nature of university settings being different from their experiences in high school. Therefore, it is necessary to improve students’ progress and reduce absence rates, thereby creating a rich educational experience by helping students become motivated.

In addition, with the integration of technology, learning needs to take place in a more active environment. The integration of new instructional models such as flipped classrooms that use technology will change learning to become more constructivist-based. According to Adams et al. (2012), using technology in learning encourages student discussion and collaboration, which is consistent with the constructivist theory.

The constructivism theory matches the purpose and goal of the flipped classroom model. In the flipped classroom, instruction moves from being extrinsically motivated (teacher-centered) to intrinsically motivated (student-centered) with guidance from the teacher; this will flip the role of the professor from “the sage on the stage” to “guide on the side” (King, 1993, p. 30). Additionally, changes could happen in the classroom climate, e.g., the class organized as a round table or divided into groups to learn from
others instead of facing and learning from the teacher only. Moreover, the content of the lecture could be delivered in different ways and not depend on one resource; students also could apply different activities as a part of the content by connecting students’ experiences to a deeper form of learning. According to King (1993), the constructivist perspective of student learning happens when students gain a mastery knowledge of new information by connecting it to prior knowledge and experience.

**My Stance as Researcher**

In 2011, I had my first qualitative research class. I had no idea about the content of this type of research--just an idea that no numbers were necessary. I began with the first and most important point in any research--to choose a topic. I was searching for new trends in educational technology as my major study. I found many topics in the journals; most were about specific technology tools to use in education and how to integrate them. However, I was not interested in those articles because I believed technology tools change very rapidly; most of those tools might not exist after a short period of time. I was searching for something different that could benefit the whole educational process to keep education valuable and informative for teachers and students. During this process, I found a new teaching style referenced in different articles--the inverted (flipped) classroom. While I was reading about the flipped classroom method, I remembered my prior teaching experiences and thought I had been taught in a way that did not seem to fit my style of learning. From this research, I found the flipped classroom method helped students gain a fuller understanding of the learning process; they could judge whether or not the weak points of their class came from them or the professor.
My perspective about teaching and learning was students should have a strong connection to the development and effectiveness of the classroom. In other words, I believed classroom learning was not limited to the student just learning from the teacher and repeating what was said and where the teacher was solely responsible for teaching. What we care about as educators and researchers is to develop better, more successful students. Teaching and learning are two major topics in education that focus on using time effectively for both students and teachers to gain knowledge, abilities, and social and emotional skills to support a suitable learning environment. Therefore, I decided to conduct research that examined how the flipped classroom method could support the effective use of classroom time, benefiting both students and teachers in the learning process.

**Methodological Framework**

This study utilized a qualitative evaluation approach; this approach benefitted the study by examining the depth, details, and description required for the purpose of this research study. Data were collected through direct participation to gather participants’ perceptions of the topic; this recording of their direct actions helped me interpret the findings based on their voices. Merriam and Tisdell (2016) stated, “The overall purposes of qualitative research are to achieve an understanding of how people make sense out of their lives, delineate the process of meaning-making, and describe how people interpret what they experience” (p. 15).

This qualitative study used a case study approach to understand the flipped classroom implementation from an evaluation lens and participants’ perceptions. Case study was a suitable method to this study because the professional development was
designed specifically for this institution; I wished to see how the faculty and students perceived the effectiveness of the training and implementation in this particular case. Thus, the study was conducted by collecting and analyzing rich data from different resources to help reach the purpose of understanding this instructional model. A qualitative evaluation method of the case study is one in which an implementation can be observed within its context; this type of evaluation can focus more on the questions and criteria of the case itself. According to Merriam and Tisdell (2016), evaluation and research use the same methods and process; the only difference is evaluations collect data to gain evidence to make judgments about the program. However, because flipped classrooms are a new trend in education, most research was centered around assessing the outcomes of this instruction such as grade performance. Not enough studies have assessed the effect on the learning environment such as student engagement.

This study was viewed from a constructivist lens to understand the process of flipped learning implementation as an ideal instructional model impacting student engagement rather than comparing it with another model. By evaluating the impact of flipped classroom implementation, I hoped to clarify and describe this type of implementation in higher education settings to determine how to help other educators implement flipped learning in their teaching while minimizing the time and effort needed. In addition, I hoped to provide solutions as necessary in this evaluation to make the implementation experience more effective for instructors.

In this case study, I wanted to discover the impact of implementing flipped classroom instruction by trained faculty and its effect on student engagement. Thus, I chose to conduct a case study because I believed the participants and I together could
draw a clear picture of this phenomenon. However, I framed this study within a particular sample in the context of higher education.

**Setting and Sampling**

**Research Setting**

An important purpose in this research study was to find a setting that met the purpose and answered the research questions. For this study, I decided to investigate a higher education setting at the undergraduate level that offered any type of professional development training for faculty members to implement the flipped classroom instructional model in their teaching courses. I chose Rocky Mountain University (a pseudonym) as my research setting. This university had a grant for conducting flipped classroom professional development. Two trainers responsible for the flipped classroom professional development had designed and delivered workshops to faculty participants. As of this writing, these trainers were still meeting online or face-to-face on a weekly basis with faculty members. The trainers were experts in the content of flipped classroom and had trained three cohorts of faculty members from different departments since 2014.

**Sampling Criteria and Participants**

In the latest report for the university in the fall semester 2014, demographic information for this university included approximately 9,400 undergraduate students. The average age of these undergraduate students was 20.5 with 63% females and 37% males. The majority of undergraduate students’ race/ethnicity reported was White (56%) followed by Hispanic or Latino (17%), unknown (16%), African American (4%),
multiracial (3%), and Asian (2%). The student credit load was 36% full-time and 64% part-time.

In a qualitative study, the most frequent type of sampling used is nonprobability sampling where the goal is not focused on generalizing the findings of the study. In addition, a qualitative study does not answer questions like how much or how often. Nonprobability sampling is used if the purpose of the research study focuses more in exploring and discovering what happens, the implications of what happens, and making a link between them (Merriam & Tisdell, 2016).

The type of nonprobability sampling I used in this research study was purposeful sampling. Merriam and Tisdell (2016) defined purposeful sampling as when the researcher chooses a sample for the purpose of investigating and gaining an understanding and insight about an event or phenomenon. In addition, Patton (2014) suggested a qualitative case study powerful in rich information is obtained by using a purposeful sampling strategy. Therefore, each participant in this study was selected according to reasons that helped me see the flipped classroom from different participant viewpoints. To ensure the study followed the assumptions of qualitative method sampling, I chose the sample in a non-probability, purposeful manner. For this study, the two type of participants were chosen—faculty and student.

**Faculty-participants.** Faculty participants were chosen purposefully according to the following criteria:

- Professional development training in the flipped classroom model offered by Rocky Mountain University.
Each participant was chosen depending on different situations. One was chosen from those faculty members who had previously implemented a flipped classroom without training and who then attended the professional development. Another participant taught a subject that had had very little previous research as opposed to math and science courses where a great deal of previous research on suggested practices had been conducted. The last participant was a faculty member who was implementing a flipped classroom for the second time after training.

Therefore, the research was conducted at Rocky Mountain University with a sample of three voluntary faculty members who participated in a training in the spring and fall academic terms of 2015 to integrate the flipped classroom model into their teaching. The participants in this research reflected a variety of ages, included both males and females, and were from different academic departments. The participants consented previously as part of their training to participate in any kind of research related to flipped learning. These participants were chosen from trained faculty who had classes in the spring 2016 academic term and had integrated the flipped classroom model into their teaching. They were contacted by email to explain the purpose of the study and the process and were asked to schedule a time to meet with me and sign a consent letter. To protect their identity, each participant was assigned a pseudonym.

**Student participants.** For this study, I chose a sample of 14 undergraduate students--five from two faculty participants’ classes and four from the third faculty participant’s class. These students were given the opportunity to participate as a
representative sample of their class in focus group interviews. The choice of the student sample included the following criteria:

- Student participants were chosen from the same flipped classroom class as the professors who participated in the study.
- Students were invited to participate in the study. I limited student participation to a maximum of five students per class; in one class, I only had four students.

Information and details about the study was sent by email from the researcher to the faculty participants who were then asked to forward the request to their students. The consent form was signed by the students at the first meeting of the focus group. The names remained anonymous through the use of pseudonyms. The consent letters along with the data collected have been kept in a locked cabinet in my advisor’s office and will be destroyed after two years. I provided a $10 gift certificate to each student-participant who attended the focus group sessions.

**Sources of Data**

Since this research study focused on implementation evaluation, the primary data resources collected were individual interviews, focus group interviews, online observations, in-class observations, and documents and artifacts. Gathering multiple resources helped to assist the study’s accuracy. Each of these data sources is described in the following subsections.

**Interviews**

Using interviews as a source of data for the research allowed me to understand other people’s perspectives (Patton, 1987). Thus, in this research study, one of the main
sources of collecting data was to interview the trained faculty participants individually and to interview the student participants in focus groups. The interview questions followed a semi-structured protocol and were created by me as a researcher and evaluator. According to Merriam (2001), the semi-structured interview allows the researcher who wants to investigate specific ideas to follow up on participants’ answers to structured questions. Therefore, the interviews varied between structured and unstructured questions and were guided by issues I wanted to discover and investigate.

**Faculty individual interviews.** In this research study, the purpose of the faculty interviews was to gain more understanding about faculty members’ implementation experience of the flipped classroom in their courses. In addition, I wanted to gain a view of their perspectives in applying the flipped classroom, its effect on student engagement, and ask for their recommendations for better practices in the future for other faculty members and settings. The interview questions had four main components. The first component contained four questions regarding flipped classroom implementation before class time. The second component was comprised of two questions concerning flipped classroom implementation during class time. The third component contained four questions concerning students’ engagement in the flipped classroom. Finally, the fourth component contained three questions that asked for recommendations to improve student engagement in flipped classrooms. Sample interview questions included “How did you encourage students to complete the materials before the class time?” and “Within the different types of in class activities, which one did you think was the best learning experience for the students?” Appendix A provides a list of faculty interview questions.
Student focus group interviews. Student participants were selected to participate in three focus group sessions. A total of 14 students participated in these focus groups. The purpose of the focus group interviews was to discuss students’ perspectives about their experiences in the classroom and how the flipped learning implementation in the class affected their engagement. In addition, student participants were able to provide any recommendations that would improve the flipped classroom’s potential to increase engagement for the students. The student focus group interviews included semi-structured questions containing three main components. The first component was about the flipped classroom and included six questions. The second component concerned the students’ engagement in the flipped classroom and contained three questions. The third component contained questions about recommendations to improve students’ engagement in a flipped classroom. Examples of the questions were as follows: “Describe two moments of your experience in flipped classroom--one in which you were successfully engaged and one in which you were not” and “Do you have any recommendations to improve student engagement in flipped classrooms?” Appendix B provides a list of students’ focus group interview questions.

Observations

It was important in this study to report the implementation of a flipped classroom. Trained faculty members were likely to apply what they learned from the professional development differently. Because flipped classroom structures build on giving the lecture online before class and applying different activities during the class time, this study had to capture the complete picture of implementation by investigating both activities. Therefore, I gathered data by using two types of observations: online
observation and in-class observation. In this way, I was able to build a complete picture of the implementation of these classrooms using the flipped classroom instructional model.

**Online observations.** Online observations are a new method of collecting data in research. The increase of technology in education has led researchers to think of integrating online observations in qualitative research as sources of data. According to Merriam and Tisdell (2016), the method of online observations is as important as other collection data sources if the researcher plans to use it in conducting a study to investigate settings for the purpose of reporting a process. As the purpose of this study was to provide a description of how trained faculty members implemented the flipped classroom and how that affected students’ engagement, I conducted an online observation for one lesson through the learning management system (LMS). I described my understanding of the baseline of what was happening in the LMS by making checklists pertaining to the purpose of flipped learning the professor provided in his/her online lecture to the students. I was able to observe how the students were interacting with the instructor and with other students, which helped me describe the process of the implementation. My name was added to the LMS as a teaching assistant after obtaining IRB approval.

Therefore, using an online observation added some advantages to the study instead of overlooking or using a static copy of the LMS lesson. According to Liang (2007), comparing face-to-face observations to online observations, the latter has some advantages that benefited the research study such as reducing participants’ feelings that someone is watching them; obtaining a wide variety of information about the
participants (e.g., experience, attitudes, and emotions) from their posts and discussions, and gaining the flexibility of time and place for the researcher to observe. Consequently, this qualitative study was strengthened by observing the implementation of the flipped classrooms dynamically.

The first section of the observation checklists contained general items for me to fill out about the course name, participant code number, and number of students. The next section of checklist items contained two main parts (technology and materials and pre-classroom). Items under technology and materials included information regarding the list of materials, use of technology, and video information. The pre-classroom component contained two main parts—one for the professor and one for the students. The professor checklists contained eight items about the preparation for class that could be observed from the online lesson and the student checklists contained four items that could also be observed from the online lesson. Included in each part were sections for other additional information. Examples of the online checklists were “Provided lesson expectation and directions” and “Student actively participated in the class time.” Appendix C provides more details of the online observation checklists.

**In-class observations.** Through in-classroom observations, I was able to record the trained faculty members and students’ experiences with flipped classroom implementation in the context of student engagement. According to Creswell (2014), the researcher in the observation field takes notes or records checklists as to participants’ behaviors, processes, and activities. These notes should be recorded prior to addressing research questions in the analysis. Thus, in this study, after gaining permission from the trained faculty members to attend classes using flipped classroom techniques, I used
observations to report various settings and details, e.g., the way each faculty implemented flipped learning, the processes occurring in the classroom, and the activities and engagements in which students were practicing in both in-class and online settings.

In-class observation checklists were used to evaluate the implementation evaluation approaches mentioned above and how training was used in the implementation of the flipped classroom including the main components of flipped learning, technology usage, in-class activities, and support for student needs and help. Additionally, according to Patton (1987), observations help the study be more effective by understanding the content as holistic, discovering the case by attending personally to the experiences that were occurring, and reflecting on those experiences. Observations might be able to address questions not addressed by another method, i.e., participants might not be able to address certain topics for different reasons such as sensitivity. Therefore, observers could present ideas from a different perspective.

The first section of the in-class observation checklist contained general information about the lessons such as the course name, participant code number, and number of students. The checklists for in-class observation contained three main components to cover: the professor’s role in the classroom, the classroom activities, and the students’ role in the class. The professor’s role in the classroom included seven items that described his/her actions in the class. The activities component contained six ways the professor managed activities in the classroom. The students’ role in the class listed eight ways in which students participated. All three components had sections to write notes and other additional information observed. Examples of in-class checklists were “Supervising class discussion for the group” and “Students show engagement as a group.
or individual in doing the activities.” Appendix D provides more information about the in-class observation checklists.

**Documents and Artifacts**

In addition to using interviews and observations as data resources, I also obtained a copy of online materials being used by instructors who taught the flipped classroom courses. Materials collected for the classes included any information created and offered by the professors including the course syllabus, reading assignments, projects, created videos, website links, discussions, and any records of emails from students to faculty members about the class content or activities. These artifacts helped me gain a deeper understanding of the way in which the flipped classroom was implemented (Merriam & Tisdell, 2016) in addition to using interviews and observations.

**Data Gathering Procedures**

In this qualitative research study, I followed certain procedures while conducting the study. These steps helped me stay organized and focused.

Before beginning the study, I contacted the director of the Center of Technology Enhancement and met with the trainers responsible for the professional development of the faculty members who wanted to use the flipped classroom method in their classes. In the fall of 2014, I obtained permission to conduct research by taking my sample from any trained faculty member and their students who would be in training for spring 2015, fall 2015, and spring 2016. After discussing the possibility of the study and getting agreement from the trainers, I was introduced to the faculty members as a researcher and my name was added to the online professional development with the faculty members.
In the beginning of spring 2016, I met with the trainers to choose three faculty members who participated well and who would be most beneficial to the purpose of this study. I consulted with the trainers again to confirm the needs and goals of their training and what outcomes they were looking to obtain during implementation. The reason for this consultation was to modify their answers to align with my observation checklists and interview questions. This conversation helped me clarify the goals of their training and to formulate four questions for the trainers that followed the implementation evaluation process according to the utilization-focused evaluation (Patton, 2008).

The questions covered the achievements and practices of the training in addition to changes in faculty teaching. However, answers to these questions were not required during this meeting; instead, the trainers were given a copy of the questions and were allowed to send their answers to me via email. Patton (2008) recommended researchers gain an overview of the program from the trainers to obtain answers that would help clarify the goals and then help the researcher gather subsequent data using questions and checklists created or modified from that overview. The questions and observation lists I created were modified as necessary. Examples of questions asked were “What kind of changes do you want to see in flipped classroom participants as a result of participation?” and “What are you trying to achieve with flipped classroom participants?” If the trainers stated a specific change or achievement they wanted to see as a result of their training, my interview and/or checklist then changed to reflect that specific change or achievement.

After getting approval from the Institutional Review Board (see Appendix E), an email was sent to the chosen faculty members to ask for initial acceptance from them and
to arrange a meeting date, time, and place. The email also included an invitation to be forwarded to students who were in flipped classroom implementation courses and invited up to five students to participate in the focus group interviews (see Appendix F). I replied to all emails from students and arranged possible date, times, and place to meet. Each participant was sent an electronic consent form to read and a hard copy was signed when we met to begin the data collection process (see Appendix G for faculty member consent form and Appendix H for student consent form).

Each consent form provided information about the purpose of the research, the procedures of the study, the type of data that would be collected from them, and the time of their participation in the study. All participants were informed of their rights to accept or reject interviews, observations, and audio recordings if they participated. During this time, I also arranged with each person the date, time and place to meet again and collect more data, which could be through online observation, in-class observation, faculty interviews, and/or collecting documents. These meetings also determined which lessons I would specifically observe online and in class after which I conducted the faculty interview.

I asked each professor to add me to their online portion of the flipped classroom course as a teaching assistant and provide me with access to the LMS. I performed the first data collection by conducting an online observation of the chosen lessons by following my checklist. In-class observations were conducted using the same online observation lessons and using the checklists as a guide. Then interviews with faculty members were arranged. The interviews were scheduled during the second half of the spring 2016 semester. I took any necessary documents to this interview. The last
collection of data was carried out through student focus group interviews. After all these data were collected, I began my analysis.

**Data Analysis**

Qualitative research study always involves having a huge amount of data. This study had transcriptions from faculty interviews, student focus group interviews, and checklists from online and in-class observations. The analysis followed the evaluation model used in this implementation study--the utilization-focused evaluation model (Patton, 2008). Primary components of Patton’s (2008) implementation evaluation approach to help with data analysis is described below.

**Implementation Evaluation Components**

**Effort evaluation.** Regarding the purpose of this study, effort evaluation noted whether trained faculty members were able to implement a flipped classroom, whether lectures were available before the classroom activities began, and whether suitable activities were prepared for students to understand the context of the lesson and practice the material. This type of implementation evaluation determined whether or not students actually received the flipped classroom content as the model was defined.

**Monitoring evaluation.** For the purpose of this research, the trained faculty members monitored the lecture and any materials through the LMS software. This software helped the researcher and faculty members manage the flipped classroom implementation by gathering necessary data, interpreting the results, and connecting them to the findings. The usefulness of tool features for the software system was affected by how challenging data monitoring was for implementing, reviewing, and adjusting program components when needed.
**Process evaluation.** For this study, this step revealed the strengths and weaknesses of the overall process of the flipped classroom implementation from the perspective of trained faculty and students and its effect on student engagement. For the researcher, the main points of this evaluation included how the flipped classroom was guided by the instructor, what happened to the students during class activities, how problems were solved by the faculty members, and what the faculty and student perspectives were regarding the flipped classroom implementation.

**Component evaluation.** A flipped classroom typically has an online lecture containing a video recording of the professor explaining the content and might have some questions to discuss during the class; there were group or individual activities and professor monitoring and consulting with students as needed. Consequently, by including these components and others, the flipped classroom could be implemented and ready for evaluation. Therefore, the researcher evaluated these components and the linkages between them to ascertain their effect.

**Treatment specification evaluation.** In this study, different recommendations could be suggested for the amount and type of implementation for the flipped classroom to help produce the most successful recommendations in terms of learning and student engagement. This component as an approach needs an evaluation that is truthful and responsible because recommendations are difficult and complicated to identify. This evaluation suggested which part of the flipped classroom implementation needed the recommendations to help the classroom environment be more effective.

**Analysis**
The process of analysis involves organization of the study, resourceful insight, and a focus on the purpose of the evaluation study (Patton, 1987). The following paragraphs summarize the data analysis process.

**Prepare and organize the data.** Different types of data resources were used to analyze data. The first step in analysis was to use descriptive statistics based on the checklists and documents to illustrate how often instructors followed flipped classroom directions to prepare their lesson plans. The next step of the analysis was to prepare the interviews of the faculty and students to be transcribed. The third step of this study was to read the transcriptions, checklists, and any other raw data multiple times and build codes based on the evaluation themes as described by Patton (2008). Then I divided the data into parts by each faculty member participant with their students’ data in a separate document for easy access to the data.

**Explore and define the codes.** After organizing and managing the data, the next step was to code the data. According to Merriam and Tisdell (2016), “Coding is nothing more than assigning some sort of shorthand designation to various aspects of your data so that you can easily retrieve specific pieces of the data” (p. 199). Coding in this study was distinguished by a combination of single words and phrases; I used thematic analysis for coding the data. Thematic analysis, according to Braun and Clarke (2006), is a strategy used to identify, analyze, and report themes within the data. It helps the study by organizing and providing rich descriptive information from the data set and lets researchers easily interpret the various aspects of the study purpose. The data analysis was guided by the implementation evaluation of U-FE. The study also used deductive
analysis-- when the researcher uses an existing model or framework (Patton, 2008) and from that general model moves to specific conclusions.

In this study, faculty interviews, student focus groups, and the observation checklists were analyzed using deductive analysis. From this general model of evaluation, I created codes and organized them into themes and categories to generate an initial coding list related to the model components: effort, monitoring, process, component, and treatment specifications.

**Reporting findings.** Since the research study included collecting and analyzing data from three faculty members and five students from each faculty member, this report contained multiple case studies. The findings presented three individual case studies of faculty member participation. I then presented the general findings of all the cases according to the implementation evaluation components. The model themes helped me make interpretations and connect the data to make judgment. The less proven data related to themes meant an increased chance of failure and vice-versa. Reporting the findings consisted of checking all the steps and relating the findings to the purpose of the study, literature review, and research questions.

**Computer-supported data analysis.** According to Merriam and Tisdell (2016), an important step in coding is using a specific organization of framework that is relevant to inform the study. The data resources were analyzed by using model components, which is putting the coding into the existing model themes (see Table1). In this study, I used NVivo software to increase the proficiency of the data and decrease the effort and time used to arrange and manage the coding of the data.
Table 1

*Description of Research Questions, Data Sources, and Data Analysis*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Data Sources</th>
<th>Data Analysis</th>
</tr>
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<tbody>
<tr>
<td>Q1. How do faculty members who had professional development experience the implementation of flipped classroom environment?</td>
<td>- Online observation</td>
<td>For each research question, I followed the same process of analyzing the data according to the implementation evaluation framework components: effort, monitoring, process, components, and treatment specification.</td>
</tr>
<tr>
<td></td>
<td>- In-class observation</td>
<td></td>
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<tr>
<td></td>
<td>- Faculty interview</td>
<td></td>
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<tr>
<td></td>
<td>- Documents</td>
<td></td>
</tr>
<tr>
<td>Q2. How do professors perceive student engagement in a flipped classroom environment?</td>
<td>- Faculty interview</td>
<td></td>
</tr>
<tr>
<td>Q3. How do students perceive student engagement in a flipped classroom environment?</td>
<td>- Student focus group interview</td>
<td></td>
</tr>
<tr>
<td>Q4. What recommendations can be provided to improve student engagement in the flipped classroom?</td>
<td>- Faculty interview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Student focus group interview</td>
<td></td>
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</table>

**Trustworthiness**

In this research study, I used three different strategies for promoting validity and reliability to establish the trustworthiness of the data: triangulation, member checks, and audit trail.

**Triangulation**

According to Flick (2009), triangulation is defined as using different approaches, participants, time settings, data resources, and different theoretical perspectives in conducting qualitative research. Thus, in this study, I applied different data collection
resources: individual interviews, focus group sessions, observation, and artifacts. I also included different perspectives by interviewing faculty members and students.

**Member Checks**

One of the strategies I used to ensure the internal validity of the study was member checking. I gave my participants a copy of their transcripts and a summary of my interpretation of the total findings. According to Merriam and Tisdell (2016), this is also called respondent validation, which describes the researcher seeking feedback from those interviewed to improve the validity, credibility, and accuracy of the study. This strategy helped me correctly interpret what the participants said in this study.

**Audit Trail**

In this qualitative study, I used an audit trail to describe step-by-step details about the process of collecting data while writing any thoughts about the study. The audit trail included questions and ideas that came to my mind that I needed to address and any issues I faced that needed a solution or decision. According to Creswell (2007),

> The audit trail [consists] of chronological narrative entries of research activities, including pre-entry conceptualizations, entry into the field, interviews, group activities, transcription, initial coding efforts, analytic activities, and the evolution of the survival and coping theoretical model. (p. 291)

**Summary**

The main goal of this research was to discover flipped classroom instructional model implementation and its effect in student engagement. Another goal was to discover the implementation process, explore faculty and students’ perspectives, and provide recommendations to integrate the flipped classroom instructional model in the classroom to improve student engagement. This chapter presented the epistemology theory of constructivism and my research stance for the study. The qualitative study
implies a case study as primary methodology. This study followed the framework of implementation evaluation of utilization focused-evaluation components. Interviews, observations, documents were collected and analyzed utilizing a qualitative method. I analyzed the data by reviewing the transcripts from the interviews. Observations and the documents were reported as descriptive data. My last steps were to review the transcriptions and then create categories and themes following the lines of the implementation evaluation components.
CHAPTER IV

RESULTS

The purpose of this study was to evaluate the implementation of the flipped classroom in higher education from the perspectives of trained faculty members and its effect on student engagement. The study covered four main areas related to the research questions: (a) the experience of flipped classroom implementation from the perspectives of trained faculty, (b) faculty perception of student engagement in a flipped classroom environment, (c) student engagement in a flipped classroom environment from students’ perspectives, and (d) student and faculty recommendations to improve student engagement in the flipped classroom. A qualitative method was applied in this study to get rich insight and in-depth descriptions. Four research questions were used to guide this study:

Q1 How do faculty members who had professional development experience the implementation of flipped classroom environment?

Q2 How do professors perceive student engagement in a flipped classroom environment?

Q3 How do students perceive student engagement in a flipped classroom environment?

Q4 What recommendations can be provided to improve student engagement in the flipped classroom?
This chapter focuses on answering the research questions by first giving an overview of some data processing used in this study. Second, I focus on analyzing the four research questions separately and conclude with a summary of the overall data findings.

**Data Processing**

Before gathering data to answer my research questions, I collected some initial data from two trainers who were responsible for the professional development of the faculty members. I received two types of data from the trainers: (a) the trainers’ goals from their training were clarified and (b) the trainees’ plans of implementation were stated (only for the faculty participants in this study). These data helped me modify interview questions and provided some background information about implementation plans for the three faculty members who were participants in this study. These plans helped me understand the implementation process for each faculty member and clarified goals for the observation evaluation.

I sent four questions to the two trainers via email to clarify the goals of their professional development for implementing flipped classrooms. The questions followed Patton’s (2012) questions for goals clarification. The questions were focused in the following four areas of concern:

1. **What are you trying to achieve with program participants?** The trainers’ main objective for participants of the flipped classroom professional development was to support faculty trainees by providing them with tools to make flipped classrooms more engaging for students. Also, they learned to build their courses using active and dynamic inquiry-based learning with support by using professional videos created by them.
2. If you are successful, how will those who complete the program be different after the program than they were before? The differences would occur in the faculty trainees after completing the training. The trainers believed the faculty trainees would gain a knowledge base related to the tools that could be used in flipped classrooms. Faculty members were also taught techniques to increase student engagement. The purpose was to instill confidence in faculty to be able to create their own videos and have the skills to post them online for their students. Also, the faculty would be able to combine the engaged classroom activities with video content to create a successful flipped classroom environment.

3. What kind of changes do you want to see in program participants as a result of participation? The trainers’ expectations were to result in faculty implementation of flipped classrooms in their courses. The main expectation was for students in flipped classrooms to be more engaged with the materials and activities and to use the online videos and other requirements successfully. In general, the purpose was to see that the combination of the two components of flipped classroom online video lectures and in-class applications using activities led to more student learning and higher student achievement.

4. When your program works as you want it to, how will those who complete the program behave differently? After training, faculty members should be more confident in their ability to create, edit, and share videos. They should be competent in the coordination of those videos within class activities. The
trainers thought that this implementation would lead to noticeable changes such as increasing attendance rates, creating students’ accountability skills, and encouraging students to work harder to get participation grades. Also, trained faculty should be better prepared to manage class time for inquiry learning in addition to having a plan for making a connection between the videos and in-class activities. Most trained faculty believed they had enough time in class for engaged learning using previously available resources from the online assignments.

**Data Collection**

I started collecting the data sources as planned in Chapter III with minimum changes. Data collection occurred toward the end of the semester during the last classes before final exams. Three faculty members participated in the individual interviews and 14 students participated in focus group interviews. Once the faculty and student participants were identified, time and location were chosen and signed consents were collected at the beginning of each interview. The three faculty participants were from different disciplines (anthropology, sociology, and business); their individual interviews were conducted as the last step of data collection. In addition, four separate groups participated in student focus group interviews with a minimum of two students in each group.

I began data collection by conducting observations of the classes. Online observations were conducted first, resulting in three online checklists and notes. These were followed by in-class observations the next day, resulting in an additional three checklists and notes. Next, individual interviews of faculty members were conducted and
recorded; most of them took approximately 30 minutes to complete. Finally, the researcher conducted four focus group interviews with students from the same classes. All the focus group interviews were recorded and took 55 minutes or less to complete. All the data gathered from the interviews were transcribed and then imported to NVivo11 for coding to easily organize and categorize the data. Three strategies (observations, focus group interviews, and individual interviews) were used as evidence of trustworthiness to strengthen the study.

**Faculty Participants: The Plan**

**Before the Implementation**

This study was conducted with three trained faculty participants. Each participant submitted an implementation plan as a part of the training activities. The implementation plans were very descriptive and individualized with each plan having different methods and viewpoints. The following summaries describe each plan and its result in practice.

**Class 1: Anthropology project.**

My main goal was to have an activity that would connect directly to the learning goals that would teach them something. They could apply something that they learned in the reading, or in the film or the video I assigned. My main goal was that it would seem educational, relevant, and interested. (Faculty Participant A)

I would say that, compared to my other classes, this class is a lot easier than those. You do not have to put as much time in to understand it. The only time you worry about putting in the time, putting in the effort, is before the test. The questions he puts on the tests are sometimes very detail specific, so that’s what motivates me to remember to study and look over the chapters. It is not hard for a class in general. (John—a student)

This course was an introduction to anthropology, describing the types of field and laboratory research methods used in the subject. In the past, the class was typically offered two to three days weekly and was divided into two days for lectures and one day for laboratory assignments. The new plan was to change the meeting time to just one day
per week instead of three times and adding additional material to the Blackboard learning management system such as videos to introduce core topics with modified course learning objectives, additional quizzes, and a group project that required high levels of thinking, e.g., using students’ knowledge and skills to foster and analyze the course content.

The professor explained in his plan how he would work to improve student engagement in his flipped classroom implementation. He would develop effective hands-on activities, engage students in learning how to develop their application of skills, and improve their job prospects related to archeological, museum, or heritage management career tracks. Also, he planned to create an enjoyable and beneficial in-class environment during lab time and activities. In addition, he planned to provide a clear guideline by highlighting important skills development tasks that would be graded. Finally, he would support students by helping them gain related knowledge and skills from outside the lecture and the readings. An important part of flipped classroom implementation is to create a variety of active learning activities in the classroom. This professor listed the active learning activities he was planning to demonstrate during the course time (especially in the lab) such as analyzing materials, taking field records, administering pedestrian surveys, analyzing human and animal bone, designing case studies, conducting field excavations, and analyzing class projects (see Table 2).
### Table 2

**Implementation Plan for Faculty Participant A**

<table>
<thead>
<tr>
<th>Differences</th>
<th>Advantages</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course is now offered once a week for three hours.</td>
<td>Enough time to complete substantial labs, including set-up and tear down, as well as outdoor labs that require transporting equipment.</td>
<td>Some students find it difficult to fit a three-hour course into their schedule. For this reason, the course is late in the day to minimize course conflicts. Some students have difficulty staying focused for three hours, but in this case much of that time will be spent on engaging activities that should mitigate boredom or inattentiveness.</td>
</tr>
<tr>
<td>Some core course content will be delivered in a series of short videos posted a week in advance. These videos will be supplemented by brief presentations in-class, when necessary.</td>
<td>Students arrive to class with pre-exposure to the main ideas for that week, and an introduction to the lab.</td>
<td>Students may resist watching videos in addition to reading and written homework. Faculty Participant A will address this concern by making the purpose of each video clear, emphasizing the value of having a lecture you can revisit when studying for tests, and keeping the videos brief and focused. Ideally each video will connect to an interesting lab that will draw the students into the content and make it seem especially relevant.</td>
</tr>
<tr>
<td>Revised course learning objectives.</td>
<td>Revised objectives focus on applied, measurable outcomes.</td>
<td>It is difficult to ensure that students meet each objective via the labs and other assignments. Faculty Participant A will build in iterative activities that work towards multiple learning objectives over the course of the semester by applying skills and knowledge in multiple contexts.</td>
</tr>
<tr>
<td>Addition of weekly on-line quizzes or short written assignments related to the videos.</td>
<td>Carrot/stick approach to ensure that the students watch the videos and prepare for class.</td>
<td>Students may have anxiety about quizzes, or their grade may suffer if they forget to do them. To mitigate anxiety, the quizzes will be timed but open book/notes. The goal is not to test the students for mastery of content but to ensure that they look over and consider the material each week.</td>
</tr>
<tr>
<td>Students will complete group projects (~ five persons per group) that require mastery of a set of analytical techniques and coordination between groups.</td>
<td>The relevance of the methods studied will become clear as they are applied in the course of the project. By working as a class towards a larger goal, but with efforts parcelled out to smaller groups, students will feel like their contribution matters.</td>
<td>Some students, especially very good students, hate group work. To mitigate this each group will complete peer-review evaluations to ensure equal participation and reward those who do their part. Students should also understand that they could not complete this project except by teamwork, just as archaeologists do not work alone. Thus, the project demonstrates the actual environment of archaeological research.</td>
</tr>
</tbody>
</table>
After discussing his plan of implementation, the professor provided some concerns regarding the course he thought might happen. According to this professor, there were five challenges:

1. Some students would have difficulty focusing for three hours.
2. Students might resist watching videos with other work they have to do.
3. There might be difficulty ensuring each student would meet the course objectives through the lab and the assignments.
4. Anxiety might arise for students from the quizzes and other graded work.
5. Some students might not prefer to work in groups.

From my point of view, this class was ideal for implementing a flipped classroom. It was already well organized in online and in-class segments. The professor’s design for the online lesson was generally easy to follow and the activities or requirements were presented weekly. His directions and guidance descriptions were very clear and informative (e.g., how many minutes each video lasted, what students had to do, etc.). If a connection was made between the elements of the flipped class and setting a value for each element (such as having a quiz for a certain number of points after watching the video), the instructor felt he could be viewed as having been successful in his implementation. He also wanted to be sure he could divide the class time appropriately by giving enough and not extra time for each part since extra time could lead the student to feeling bored. For example, if there was a review, the review had to last just long enough to remember but not too long that students would be bored by the repetition.
Summary of students’ perspectives regarding the class. I interviewed five students from the anthropology class who had opinions regarding four different main points:

1. Students engaged in watching the videos before the class felt the videos focused on important topics, leading them to become engaged and causing them to feel the instructor who talked and explained through the use of examples was not just reading slides.

2. Having quizzes that related to the videos’ content helped the students do the work of watching the videos, taking notes, and participating in the class.

3. By having no lecture in the class, students felt they could spend more time working on activities that would help them understand the content more and better.

4. The class taught them to be accountable to do the work before the class, not just to pass it, but to understand, which helped them work with others as a group.

In general, the students really liked how the flipped classroom was implemented in this course. They did not want to see the course be taught as a lecture as they felt that method of teaching would make it less engaging for the students.

Class 2: Sociology.

In this class, they didn’t get anything more going on in the discussion board than anyone else. So, it didn’t seem to work so well. It wasn’t a negative; it just wasn’t a positive. But in terms of where they were most engaged, it was in the classroom. It wasn’t with the videos, and wasn’t with the reading. It was in the classroom. (Faculty Participant M)

Normally I just look for something I have a personal experience with, and I post that on the discussion board. But as far as looking at the lectures and videos that
are online, I would say I only really look at them before we have an exam. Other than that, it seems like, "I already read the book, why do I have to watch the video? (Alex--a student)

This professor provided a two-semester plan for implementing a flipped classroom in his course after training. The first semester would occur immediately after the training and would be designed for a partial flip for the course and sometimes a half-flip for the lesson by using some of the flipped classroom elements such as the online component without the main video lecture. The professor planned to test the new materials, the in-class activities, and the online videos he made for the course. After getting ongoing student feedback, the professor would work during the same semester to modify the components of the class for full implementation in the second semester. The full implementation plan focused on clarification that would be provided for the students in the syllabus regarding the class format--to understand the purpose of the flipped classroom, to be aware the videos would replace the lecture, and be given instructions regarding watching the videos. Assessment or quizzes would be conducted for the students at the beginning of each class to ensure their completion of the online work from watching the videos or other requirements. Student attendance would also be recorded for each class by passing around a sheet of paper. The professor also listed active learning strategies that would be used including group work, exercises and games, individual and group presentations, and a research project.

At the time of my interaction with this class, it was half-implemented to the flipped classroom model in the lesson; the lesson had reading as required but the video was additional and not for explaining the main content of the lesson’s lecture. I observed a lesson online but navigating the links was confusing for me based on the lesson’s
structure and how the information was presented. I had difficulty trying to figure out what the required reading and videos were; reading from the book was the main focus and there was a class discussion each week but the readings and discussions were not required to be finished before class time. The videos were provided and made by the professor but were not as important as the book’s content. In the class, most time was spent switching to different activities. Some activities began by offering some very creative group presentations that filled students with confidence while they were presenting; the other students in the class were good listeners. After finishing the group presentations, the mini lecture started. This was comprised of a list of questions-- each question covered a part of the book. The students were divided into groups by the professor. Most groups were very engaged and discussed the answers. Only one group was made up of two students who were not engaged. One of the students did not want to accept a request to join the group; he preferred not to be part of the class until the professor asked him to join the other students. Even though these students did not want to talk to each other for a few minutes, in the end they discussed and answered the required question. This seemed to me to be an observation of how group activities could change students’ attitudes and confidence levels.

The only downside for these activities was the allotted time was more than the activities actually needed, which led to students just chatting at the end. But the professor actively guided students by passing by each group. At the end of the class, the faculty member allowed each group to answer questions in front of all the other students.

In general, I did not observe the flipped classroom being implemented as it was supposed to be, especially online. In addition, the students’ online responsibilities (for
example, taking notes from the video lecture) were not mentioned but the role of active learning in-class by the students helped increase student engagement. The professor knew in general what would have to be changed for better practices; what affected this flipped classroom was it was not yet completely implemented.

**Summary of students’ perspectives regarding the class.** I conducted focus group interviews with four students from the sociology class. Their opinions of their class were as follows:

1. They did not see any value or need to watch the videos before class. They felt that “extra things” such as the videos should be removed or modified.
2. Having discussions online with required specific posts for each student did not work effectively to get feedback (at least before class time). The discussions were seen as something to do just to pass the class.
3. By not having a review of the lesson in the class before the activities, the students felt they were responsible for the majority of the class load and the professor was not showing her responsibility.
4. Students did not feel satisfied with the dividing group tactic the professor was using. They expressed the idea that by working with the same students every time, they were not able to gain a different perspective from other students in the class.

In general, the students’ perspectives of these issues were logical and their suggestions might make a difference for the class in the future.

**Class 3: Accounting.**

Many students told me that the flipped classroom really helped them when they had to miss class, because instead of just borrowing some notes from another
student, they could re-watch the lectures and pull the problems we previously worked on in class from where they had been posted online. (Faculty Participant R)

I usually watch [my lectures] on my computer. Usually after work. When I am watching the videos, I am too busy taking notes, so I do not really do anything on my phone or be on Facebook like I would be in class. (Mason--a student)

This professor had implemented his flipped classroom a year before the training; then he attended the professional development. He joined the training to get better ideas and practices for this model. His plan was to explain how he would change his previous way of teaching his flipped classroom.

The first point the professor mentioned was he thought it was very important to create videos; however, from the training, he discovered that preparing for class time and managing the schedule and the activities were also important. Also, he pointed out the flipped classroom could be approached differently for each type of course in terms of how many times the class met per week and the level of the course.

A second point was introducing the new instructional model to students from the beginning of the course. In his opinion, it was very important to give students an idea of the model by putting a video online for them to view. This video should have all the information about the flipped classroom instructional model by explaining the main components. The professor also mentioned he wanted to track the students to see if they were watching the videos completely so he was using software that offered him this feature, which he thought was very helpful.

Another point mentioned by this professor was the purpose of creating the videos: it was not just to offer a pre-class lecture but it was also to create videos based on topics that were difficult to understand in class or to show some examples to use as practice
problems. Most of the videos he was planning to do after the training involved creating videos by topics instead of offering a lecture--instead of having a video 50-60 minutes long, he could change the length to three to four topics taking from 3-20 minutes with an average run time of 10 minutes.

The final point brought up by this professor was about students’ group work, which he was practicing before the training, but he gained more ideas he thought would help him when he tried it in his modified implementation after the training.

My general impression about this class was it was the best at integrating technology and explaining the online content. The online aspect of this course was very clear; it was divided by short videos that helped students to really focus. It was easy to follow and was supported by a related quiz that rehearsed the information the student needed to know. The videos were made interesting by using software that allowed the professor to comment, write, and point using different colors. These features made the students experience a real lecture equal to a face-to-face lecture.

The class time was short compared to the other classes I observed. In my opinion, the short time limited the activities, which did not allow them to be more active. The class was more focused on reviewing the information, the professor applying some problems, and then giving the students some optional problems to solve as a group. During the problem-solving activities, students were asking the professor some questions related to their problems. Finally, he solved each problem and allowed students to speak voluntarily if they wanted to answer the question. In general, as an observer for this class and not being an expert in the content, I felt from watching the videos and attending the class that I gained a lot of knowledge. I became familiar with the content and learned
how to solve problems. In addition, he mentioned many examples from life in a way that caused me to understand the material easily. The class was a top-down approach but the online component was an ideal example of a flipped classroom--more than the in-class component, which could be slightly modified to make it a more active environment.

**Summary of students’ perspectives regarding the class.** I interviewed five students in the accounting class but in two groups (one group of three students and one group of two students). They expressed their opinions of the class as follows:

1. Students generally liked the videos, which gave detailed explanations. They took notes or outlines related to the in-class overview.
2. Some students mentioned the time of the class made it hard for them to be active or engaged because it was too early in the morning.
3. Most of the students mentioned the long overview in class was more like repeating what was in the videos; for some of them, it did not seem necessary to watch the videos directly before class but they did watch the videos before taking the quiz. Also, some mentioned that if they watched the videos, they did not care to attend the first part of the class because they felt it was repeating what was in the videos.
4. The students liked the activities and saw the value of it--it made them understand the content better.
5. The students thought this class offered a higher level of knowledge compared to other classes.
6. Students were confident in their own work and did not feel pressured by the class. They understood they were accountable to solve problems through
different methods but arriving at the same answer, which helped students be more engaged and successful in accomplishing their work.

**Similarities and Differences Between the Classes**

In terms of implementation, the similarities between the classes were all three faculty members accomplished the main goal of the professional development--integrating flipped classrooms through posting videos online before class time and applying different activities in the classroom. They were also similar in terms of their syllabi, which on first glance looked typical but contained extra guidelines or descriptions and referred to additional documents to support the exams, assignments, grading criteria, or activities.

Differences were mostly seen in how the instructors organized the online content. As I observed each professor’s online class, I felt as if I were in very diverse environments that displayed materials differently. The in-class time was also spent differently, which showed me how much of a role the professor played in creating a class. Other differences were some of the professors worked to align online videos with other materials to connect the students with specific and meaningful activities. Others preferred to cover specific areas from the text, which caused different results in terms of student engagement.

**Themes**

To answer the four research questions, the researcher followed Patton’s (2008) implementation evaluation by using the five main parts as main themes for each question: effort, monitoring, process, components, and treatment specification. All four research questions were addressed from data collected using five sources: online observations, in-
class observations, student focus group interviews, individual faculty interviews, and artifacts. Descriptions of themes related to each research question are presented as follows.

**Themes in Relation to Research Question 1**

Q1 How do faculty members who had professional development experience the implementation of flipped classroom environment?

Each of the general themes explained the implementation process from a different view. *Effort* explained what the professors did to set up and implement the class and what the students did to participate in the class. In *monitoring*, the questions asked how the trained professor made changes based on feedback and did students feel like they could offer feedback? In *process*, did the professor and students feel like goals were being met? *Components* asked how each element worked to make the classroom successful for both professors and students. Finally, *treatment specification* measured the level of work sufficient to making the class successful (see Figure 1).

![Figure 1. General themes and sub-themes for research question 1.](image-url)
Effort. Effort describes what the participating professors did to prepare and carry out the actual implementation.

Setting up goals for the implementation course. The three faculty participants explained different goals for their flipped classroom implementation.

Faculty Participant A stated his students were not taking the class as a major so his goal was to try to keep the course interesting with the flipped classroom implementation:

To keep it interesting for them, I had to decide which were the most useful methods for them to learn and at what level they needed to learn it. I tried to focus on what I would think about as a specialist in the major, but you cannot be the master of every technique.

Faculty Participant M, who was just testing the implementation, had two goals for the implementation:

First, I want to be sure everyone participates, to make sure that it was a useful and efficient use of our time. I am not much for discussions going no place or people creating things just to be creating. I wanted it to be more purposeful and be a good practice on the material and have them leave the class better versed in what we are doing. Second, I wanted it to be useful and efficient, but I wanted everyone engaged.

Faculty Participant R had flipped his class previously. He tried to explain the benefits he got from his role more than the goals:

I believe the best way to learn the concepts are by actually doing them. By flipping the class and allowing the lectures to be heard outside of class time, it allowed the students to work on problems and projects during the class. They were able to teach and learn from other students, as well as hear explanations from myself whenever and whenever they got stuck. He also added:

The students went from passively listening to actively participating. They could no longer sit idle and day dream while jotting down a few notes. They had to work on problems, answers questions, and ask questions.
Planning for their role in the implementation course. The faculty participants mentioned what they wanted their role to be in the flipped classroom implementation. Faculty Participant M preferred her role to be a minor one: “A big part of me was stepping back and not being so directive, wanting them to create and practice and interact with each other.”

Faculty Participant R described his role: “I was no longer a lecturer, but a teacher. Instead of simply telling them a topic, I taught them how to accomplish it as they were going through it. You also have to facilitate that students are staying on track and working on the assigned tasks.”

Defining the actual setting for the implementation. Faculty Participant A had done a high level of preparation for his class. He explained his implementation setting: “For my flipped classroom, I primarily showed 10 to 20 to sometimes 30 minute videos online that went with a quiz most of the time. Then I either developed a new activity or took an existing activity that I used previously.”

Faculty Participant M defined her flipped classroom implementation as three units divided into 15 weeks. So there is sort of a starting and stopping point. If they [students] do get behind they know how much they have to do to catch up. The units gave them an end point so they were a convenient way of chopping up the semester for them. It wasn’t anything theoretical about the three units. And they ended with an exam. Having them have to do more critical analysis, creative stuff, thinking about the material in new ways that they hadn’t thought about before. Sort of being pushed to doing new work or but also being required in the exercises to practice what they should have come prepared with--the basic supplies.

Faculty Participant R explained his class implementation:

It is additional work on the part of the professor and there is a bit of a learning curve around the technology, but the benefits it provides for the students vastly outweighs the additional time spent. I was fortunate enough to use Panopto as a
recording device for the students and it was a very seamless process once it was understood.

**Online videos.** All the faculty participants explained their experiences of creating the videos and the proficiency they gained from the training. Faculty Participant A said, “The trainers sort of showed us how to make the videos, but really I just got the software (Camtasia) and I practiced with it.” He added he always evaluated the purpose of the videos before he posted them to his class: “Is the video teaching them something? Is this connected to the knowledge I am trying to impart? Is it interesting? Is it not boring?”

Faculty Participant M related her experience:

I began just reading some articles about flipped classrooms and I tried a few exercises in a class a couple of semesters ago and it didn’t work so well. My technology preparation included taking that semester long flip learning [Professional Development] experience and I learned [about the software to create videos]. I had done some video creation before using [different software], but the software from the training was new and so I could create some videos, but they were not easy for me to do because I didn’t know which [content to present]. There were, so many things I could talk about and so many points.

Also, Faculty Participant R mentioned how the type of software (see Figure 2) for creating his videos made his graded videos easier:

This is where “Panopto” was a key, because it tracks students’ viewing time. So, I assign some points over the course of the semester to all of the lectures in videos and then track who does and does not watch them and they receive points accordingly.
Figure 2. Video lecture using Panopto.

Quiz effectiveness. Two of the faculty participants required quizzes after watching and doing each lesson in the online materials but Faculty Participant M explained the experience of not requiring quizzes constantly:

I didn’t do a quiz for every chapter. For every chapter I wanted to know, “Had they read the chapter and what did they know? They didn’t really do very well in the chapters. Some of them said, “Yeah I didn’t read it this week.” So it was a little bit of a culture shock in that they would be expected to know the materials every week. So they were not as prepared as they wanted to be even with a point task and the quizzes.

From the observation using the online observation checklists (see Appendix C), I noticed that the two faculty who fully implemented the flipped classroom included video time and materials required for studying by adding multiple short videos in place of lectures. Each video and accompanying material were named by topics to easily identify the material for student access. They also included very clear directions to follow so students understood the requirements for the online part without any confusion (see Figure 3). However, from the observation list (see Appendix C), two items I did not observe online were student posted questions for the professor and revised student work before the class.
Watch these three videos in the order that they are numbered because #1 includes an introduction that applies to all three videos. 1) Magnetometry, 19 minutes; 2) Resistivity, 11 minutes; 3) Ground-penetrating radar, 13 minutes. After viewing the videos, complete your assigned course readings, then take Quiz 6. You should take notes on the video as you would a class lecture.

The quiz is open-book, open-note, but it is timed and you will not have time to look up answers if you have not paid attention to the video and taken notes on the video and the reading.

Figure 3. Online video lectures with description.
In-class time. Each faculty participant explained how they managed in-class
time. Faculty Participant A stated,

Typically, what I would do is review whatever main concepts we were going to
work within our activity that day that they had already been introduced to in the
video. I would start out by asking them questions. “How does this work, what do
you need to know to do this or that?” That was connected to the video. Basically
making sure everybody was up to speed.

He added the purpose of his introduction at the beginning of the class:

There may be somebody that did not watch it. Although, I think only once or
twice did somebody not complete the quiz, which suggests to me that most people
at least glanced at the videos. At a minimum. To get them talking and thinking
about the issues… “This is what we are going to do, and the reason we are going
to do it. It is not to just kill some time here; it is because it is going to illustrate
this idea. It is going to connect this.”

Faculty Participant M described a different way of organizing classroom time:

So, the idea would be, they [view] the material outside of class, the chapters, and
the videos, whatever, and come to class prepared to practice it. The next week
they do the same thing and then they’d be quizzed on everything, videos,
chapters, and what they had done in class. So it was kind of cumulative, and then
they could start fresh in units two and three. The units were just a way to
organize the class.

Group activities. This sub-theme was implemented differently by faculty
participants. Faculty Participant A stated,

I had 28 people in the class. Usually I have 20 to 25, so the biggest challenge I
had in that regard was getting enough materials. A lot of these labs involve
sorting artifacts and things like that. You need a lot of groups of things that
people can work. Usually I had them in groups. Like, 5 or 6 groups of 4 to 6
people. Once they got started, I would go around and try to make sure they are
engaged in the task and answer questions. Sometimes, even with only 6 groups,
it’s sometimes hard to keep up with their questions.

He also explained the activity types he used with the students:

Our group activities, we would have some sort of task we were completing using
objects. Animal bones, human bones, stone tools, pottery, archaeological
materials, and they would have to sort and classify them, describe them, use
different techniques that we use to analyze artifacts, basically... They would
sometimes have to fill in a chart and calculate some basic statistics and then there is always some kind of questions you are trying to answer. What was the diet of people living at this site? How do I know that? Well I just [go] through the food remains and figure out what they are eating. As a group, we had to answer some questions about it.

He also added,

One time we watched a film about some people making, smelting iron. They smelt it in Africa. In antiquity. They were doing a recreation in west Africa, so we watched that film, and they had to answer questions about that kind of thing in a group. The activities were sorting objects, working with objects, or discussing ideas or concept. I think that we did one thing where they had to give them a series of scenarios. They had to come up with the hypothesis, or research question, they could use to investigate it. I would tell them about a certain archaeological place, and they have to come up with a research design.

Faculty Participant M also explained some activities used in her classroom:

I had them do some thinking, sort of processing themselves writing exercise. So I had them do the writing exercise and then share it with someone else, or some variation of that. I did a mini-lecture a few times. I paired them with one or two other people in a group take one of the concepts. I gave them 10-15 questions for each chapter in advance. They had them on [Blackboard], they could prepare in advance so they’d be ready for the quiz and have all the materials simulated and ready to share in the group. The idea was new examples, new ways to explain to someone else in the big group. That was the big exercise that they did. Sometimes they liked it and sometimes they didn’t. Not so much problem-solving activities. I tried to come up with problems but was more focused on group discussion, peer to peer, and then presenting to each other.

She also added,

During class time the expectation is that they would show up for the exercise. Be a group member. To show up to the table with what they had hopefully prepared in advance. They were to work like they were going to practice the problems. I wanted them to work on the material not look at their phones, not discuss other issues, just work.

Faculty Participant A described his way of using in-class activities: “I used problems and cases in both an individual and group setting. The students had time to work on these, then discuss with nearby students, then we went over the answer as a class.”
The in-class observation checklist (see Appendix D) indicated most of the items were checked for the three professors and their students during in-class time including walking around the classroom and guiding the discussions, following the timeline as planned by the professor, and guiding the students to keep them on track. Students showed engagement as a group or an individual in participating in the activities. One item on the checklist--students join in groups to work flexibly and without rejection--was noticed when a student refused to join his group, staying with another group. However, the teacher realized what was happening and asked him to rejoin his group. The student did rejoin the group but did not engage in discussion with his group for a while. After that, he was involved with the discussion and appeared to be totally engaged with others.

**Faculty roles in the classroom.** Each of the faculty participants had a unique way of role managing and controlling the activities. Faculty Participant A explained his role:

My main role in the class was to get everybody up to speed on the video and introduce the activity and explain how it connects. Sometimes I would supplement. Sometimes the video might need a little additional explanation because we are going to do an activity. They [the students] need to know something else. Instead of that being an hour lecture, it may be a 10-minute lecture, because they have already seen the video. Now my lecturing is very reduced. I think I had maybe two classes where I lectured for 45 minutes, or an hour, out of the entire semester. That was much improved.

Faculty Participant M explained her role in group activities:

What my actual role was--I went from group to group checking in to see if they needed help. Some groups had great ideas and clearly understood the concepts and even the new materials and examples. Others didn’t understand the concepts and didn’t know or couldn’t think of examples. I would take them in a different direction with some new examples and would say, “Now you can’t use those, but you see how you could do that?” So I just helped to keep the focus and the ball rolling and help the individuals or groups who needed it, but left the ones who didn’t need it alone.
Design of the syllabus and grading. From the professors’ syllabi, it was observed most of the professors had some descriptive guidance (see Figure 4) for students pertaining to online or in-class class rules. For example, one syllabus stated, “You are expected to prepare for each class by listening to the recorded lecture(s) prior to class. By listening prior to class, you will be more actively engaged in the discussion and thus will learn more.”

Also, Faculty Participants A and R who fully implemented the flipped classroom included percentages of the final grades for either class participation, for watching the videos, or for both of them. The following is an example of Faculty Participant A who included both watching video and participating in his grading:

Your grade is based on your combined score for the following activities:

- 20% Midterm.
- 20% Final Exam.
- 15% Online (blackboard) quizzes.
- 35% Activities / labs. There will be many labs, some in class and some take-home. If you have an unexcused absence on the day that we complete an in-class lab you cannot make up the lab.
- 10% Participation and citizenship. See rubric for more information. Although one must be present to participate, this grade is not based solely on attendance. It includes enthusiastic, engaged participation in class activities and discussion. This grade will drop in cases of poor citizenship, including texting or fiddling with electronic devices, arriving late or leaving early without giving prior notice and explanation, lackadaisical or unengaged completion of activities, or failure to fulfill obligations to your peers on group assignments.
Monitoring. Monitoring is a part of the formative evaluation for implementation: showing the changes that happened during the flipped classroom implementation, showing whether or not the students had any chance to offer feedback, and whether the professor made changes based upon the feedback. For the professors who fully implemented a flipped classroom, most the feedback was positive and showed their students were more satisfied. Faculty Participant A stated, “I think, overall, it seemed to go well. The students seemed to enjoy it. Nobody was complaining. I thought I might have some complaints about it. The videos. The quizzes. For the most part, people seemed to like it.”

Faculty Participant R agreed by observing, “The students like group work problems the best. It allows them to have more heads to figure out the answer and keeps them more active.”

On the other hand, Faculty Participant M stated,

I feel like so far, I have a better feel for what they [the students] want in the video, what’s going to be really helpful to them, in terms of really putting the descriptive stuff outside of the classroom and I think I have some better but not enough feedback from students about in class exercises. I feel I know a little bit about what they won’t do well, what they won’t tolerate, and what they prefer.
Also, Faculty Participant M, who was testing the implementation of the flipped classroom, had heard someone complaining about the division of labor in the group:

I didn’t know they were so rigid. They would sit in the exact same seating week after week. So, I kept having the same 10 groups that sat in the same seat and had the same group. People felt they weren’t getting a good deal because their partner was not contributing much and they were going to do the whole thing. So, you got the resentment thing going on. They didn’t appreciate being in the very same group the next week.

**Process.** Process explains the outcomes of the flipped classroom implementation. Faculty Participant A stated the effectiveness of the implementation from the view of meeting the goals of full implementation: “It improved the teaching experience for me, and the grades seemed to be better. I am going to look at the class the last time I taught a few years ago and just see, but it seemed like people did better, like they retained information better.”

Faculty Participant M, who partially implemented the half-flipped classroom in her lesson, stated she experienced some negative reactions during testing the implementation that related to the class type:

There is no straight lecture or lecture discussion so a lot happens on the fly in class. It doesn’t feel as straightforward as science and math in terms of what to do… Like, this is how we do the problem, this is the calculation, and it just seemed like you could talk about this, or you could talk about that, so I went around and around with myself what to include? I did a terrible job I think. So in terms of the experience, it has been a lot of hard work to get very little done.

**Components.** This theme related to how the elements worked together to make the implementation successful. Faculty Participant R explained the components he used that worked successfully together in this implementation:

Seemed like it worked pretty well. The lectures were prepared in advance by me and watched by the students prior to walking into class. I had the problems ready for them when they came in. We would spend a quick 5 minutes at the beginning of class talking about what they were going to do. Then I would let them loose.
Faculty Participant A stated, “I just need to expand a few more activities and modify some films [videos] each year. I should not have to build it from scratch every year. I just always change the content a bit. Yeah. Good experience.” Then he added,

I wanted to make sure, in making the videos and really purposefully creating flipped environment, it helped me really reconsider. Is this actually teaching them something? Is this connected to the knowledge I am trying to impart? Is it interesting? Is it not boring? That is what I was really working towards. That it be connected to the assessments as well. That the activities, the things they learned, and the videos would all connect to the exam, which I have always thought about the past too, but by redesigning the class, I really had to rethink all those things.

Faculty Participant M who implemented the partially flipped classroom stated,

I just did a little bit of each. I did the exercises, but it was a three hours’ period. Some of it was lecture/discussion or we’d do something else; the second half or first half of the period and then online. You know, they had the discussion board where they could build their own stuff around it. They had the videos online, and I know how I could have put them all together. I don’t think I did this. I just did some of them and then I did give them a schedule frequently and every so often I’d put a schedule on the document camera and I’d say “This is what we have done. Here is where we are going. Here is what is included in the unit.” It was dynamic. I didn’t know in advance what exactly would happen, if it was going to work. If it didn’t [work], I thought, “OK, I’m not going to do this again.”

**Treatment specification.** This aspect clarified the elements that needed different levels of work to reach the desirable outcomes. Each faculty participant expressed this theme differently. Faculty Participant M, who was just testing the implementation, said,

I wasn’t successful in getting them to prepare in advance of the class which is the only way the practice component works. The differential of preparing ahead was really problematic for the students and for me. I do think they were more cohesive than a lot of groups. They knew everyone’s name, they were familiar, they were comfortable, they felt safe, felt good, and they knew they were coming to work. They had to show up and even if they hadn’t prepared their homework and research, they had their book out scrolling through it before class, which is better than saying “I don’t know anything, I don’t need to know anything, in fact, I might be doing something else right now.” I liked that there was a community around it. They know they are going to work, prepared or not, and we were all going to do it together. That was a definite strength.
Themes in Relation to Research

Question 2

Q2 How do professors perceive student engagement in a flipped classroom environment?

This question researched student engagement in the flipped classroom from the faculty perspectives. This analysis also followed the five main themes for Patton’s (2008) implementation evaluation components.

Effort.

**Understanding the class requirements.** The students seemed to know what they should be doing in the flipped classrooms. Faculty Participant M explained her students knew the effort they had to make: “They know they are going to do something. They know they are going to be actively engaged. They know they will be talking. They know they have to show up. They have to be thinking. They have to work with other people.”

Faculty Participant A explained his current successful experience with his students: “They were mostly engaging with me on questioning review of the videos and discussing new concepts. Then working in their groups to complete these tasks.”

**Class content.** Faculty Participant A described his class content and how he modified it for better practice: “The content, I used the same textbook. Same kind of learning goals... Less of that content was reiterated in lectures. They had to glean more from their readings and the videos, but it didn't seem to radically change the feel of the class.”
Monitoring.

Switching to lecture in the classroom. Faculty Participant A explained how presenting a lecture in the classroom instead of doing flipped classroom activities had affected student engagement: “You could tell, those two times that I lectured, you could tell that after like half an hour, they are thinking is this all we are going to do. They did not want it. They are like, I miss the other times when we would just go right and do something.”

Student characteristics. Student characteristics were one reason Faculty Participant A thought he could affect student engagement in his class by using a flipped classroom environment:

Sometimes, even though some of them [students] enjoy it, I think it's hard to tell how much engaged others are. Often, if I'm lecturing, a handful of people are engaging with me, but the rest are just listening and not really engaging. The strength [of this model] was less lectures made it more engaging for people. Drew out the shyer people that maybe don't want to engage or people that aren't as interested.

He added,

I think the biggest strength is, I don't get hoarse from lecturing. A lot of students actually prefer lectures. They like to just be told stuff. They don't want to have to engage [with] you. Other students are shy, and they're not comfortable in groups. They struggle, always having to talk to people. They just want to be in class. They don't want to be part of class. I guess one of the strengths, for me, is not lecturing so much.

Process.

Group activities. Faculty Participant A expressed his opinion about how he felt about the goals being met from implementing a flipped classroom and its impact on student engagement:

I saw them learning to be engaged, but I see them, in their groups, talking to each other, asking me questions, working with materials trying to do the assignment.
All of them, [students] kind of understand how that works. They seem like they’ve done group activities in class before. The main thing I saw them learning in that area was they began to learn how my activities work. I kind of have my philosophy of those. The first few [activities], they might be asking me a lot of questions about instructions, but by the last few, they knew what I would want them to do. They became more adept at working with archaeological materials, which is part of the whole goal.

Faculty Participant R added that group activities led to student engagement in his class:

When they are working together on the problems they have to engage each other, which is a peer, so it is likely an easier starting point than the professor. Then once they have some assurance that what they are doing is on the right track, they are more likely to speak up in front of everyone.

Faculty Participant M experienced generally engaged students but a few who were international students faced some confusion: “A couple of people with language issues who said, ‘I’m lost. I don’t know what to do.’ It was harder for them than for everybody else. They, to a real degree more than for anybody else, were actively engaged.”

Faculty Participant M added a general impression for her class from her way of implementing a flipped classroom:

I always have a few [engaged students] but not the vast majority…but everyone felt [engaged]. And everyone came to the class pretty much. So they were there, they worked, they cared. It is a lot easier content than other courses that people could be teaching… It could be 5 out of 50 or for me; 3 out of 25; but this was 24 out of 25 [engaged students]. That felt good. That was a huge strength, I would say.

**Student performance.** Faculty Participant A experienced positive outcome, expressing the idea that the reason his goals could be met was due to implementing a flipped classroom:

I think their [students’] grades were better. I think they were more engaged in class. Attendance was really good. I do count attendance as part of their
participation grade, but I seemed to have an unusually high enrollment, but also a relatively high attendance rate. I don't know if that's related to flipping it or not. If they thought that this class won't be boring, I'll go to it. You know. I don't ever know.

**Components.** This section explains how each element of the flipped classroom worked to build successful student engagement.

**Watching the videos.** Faculty Participant R explained his class time was effective in helping students be more focused and engaged:

I teach accounting and tax; keeping them awake is always the hardest part! Getting them to buy in at the beginning of the semester is the toughest part. In-class isn’t too much of an issue, but getting them to watch the videos outside of class is always a new concept.

**Quality of student participation.** Faculty Participant M had some issues by not fully implementing the flipped classroom:

In the classroom, again I don’t think they were engaged in terms of preparing in advance. I don’t think they particularly enjoyed the videos. The discussion board looked like every other class. Oh, I have to do five posts in this unit and they did 5 posts. Some people did 10-15 posts which I kept telling them they could do – “use it as a sounding board, engage with each other”; instead they would just plop a post up. I was disappointed with that.

**Student accountability.** For Faculty Participant M to be successful, her class depended on making the students more accountable for doing the flipped classroom requirement of preparing before the class: “I failed at getting them [students] to be prepared. Lots of time they did know the concept by the end of the class, but that was because they had been opening their text and reading about it to each other. That was not a useful use of their time.”

**Treatment specification.**

**Reconsider the class components.** For Faculty Participant M, who had tested a partial implementation, the main point was centered around the idea of her class
becoming more engaged and effective for her students by re-organizing it and making connections with flipped class components: “Smaller videos and more videos is what I need to do and then I need to have video specific questions on the quiz and I think the quizzes need to count for more so that their overall grade is affected.”

**Increase the exam value.** Faculty Participant M thought if the exams did not have a big enough value for the course, the students became less interested and engaged in learning new concepts: “I didn’t want the quiz to be a big deal, but I think it needs to be a bigger deal. It really does take away time like that. But, they really weren’t interested in focusing on the new stuff or playing with an idea.”

**Create activities that have enough materials.** According to Faculty Participant A, trying to make students engaged meant having activities long enough to make students interested and engaged:

I think the biggest challenge was building the activities to fill the time. The videos took time, but not as much time. [The] bigger [amount of] time was coming up with, not just the activity, because the idea is relatively quick to come, but then to have to get enough materials. If I’m going to have them learning how we develop a typology to sort, let's say stone tools into group…I need a lot of artifacts. You can't do that with three projectile points. You need like 20. I had to purchase, sort through, or organize from our own collections, enough materials. I had to buy some things to make each activity… Each activity had to have enough stuff to make it worthwhile and interesting. You know what I'm saying? If it wasn't enough…If there weren't artifacts, or enough things to do, then it was not successful. Partly that was because I had so many students. I thought I might have five groups, but routinely I would have six groups.

He added some activities worked better than others with students to engage them:

“Some of the activities worked better than others. Some I need to rethink…I need better materials to make it really work.”

**Use different tactics to divide students into groups.** For treatment specification to work, professors need to vary the composition of the people in the groups during
exercises. According to Faculty Participant M, “I need to count differently and make sure they are not in the same group [all of the time].”

**Themes in Relation to Research**

**Question 3**

Q3 How do students perceive student engagement in a flipped classroom environment?

The same general evaluation themes used for previous research questions were also used for analyzing this question.

**Effort.** In this theme, students expressed their engagement both online and during the class. Students were all agreed the component that most increased their engagement was in-class activities. On the other hand, with regard to the online components, students had different opinions.

**Student effort in the flipped classroom.** Students explained some parts of the implementation as they saw it. Kim talked about not depending on videos as the main piece for online implementation:

> We have discussion boards where you have to read the chapter, and then you just pick something to talk about from the chapter. You can either just say your own opinion on it, or ask a question if you did not understand something. Also, comment on others posts. That is how we participate online.

Other students from the same class talked about the purpose of video. Jill said, “She [the professor] also puts these extra videos, just to emphasize or help describe certain points. It was just video. It was not tested or anything, it was just showing examples of the topics.”

Students explained the other two classes that had full flipped classroom implementations in this way. Emily stated,
The lectures are posted online, and so is all the homework, all the multiple choice homework. The book was also online as a side resource, but I never used it. I never opened the book once. For me it was just watching the lectures online the night before the class and taking notes. Sometimes I would take notes, most of the time I would not for the homework, it is really just open it up and click through and turn it in. The next day in class he [the professor] would kind of briefly go over what we learned in the lecture and then we apply it. As far as participating goes, I really think that just actively watching the videos is about as far as you need to go.

Noah added that the online and in class activities complemented each other:

Sometimes I might be a little confused from watching the online lectures and then when we actually get in class, I can understand when we are working out the problems together. When I would watch the online lectures, it would be kind of setting a foundation. It is like, all right, I know what this term means, I know what this word means. I kind of know what we’ll be going over. I did not really get it until we started going through problems together as a class. I think that for most people it would be that way. The lecture establishes the base for the concept, and then the class time is when you actually build off of it. You get good at it.

On the other hand, Olivia felt understanding the online lecture would affect her feeling of class time:

If I watched the lecture and I understood it already, then it was repetitive and a little bit like, "Well, I already know this," kind of thing. If I did not understand the lecture the first time, then it was really good because I reinforced it and the second time it made sense. He [the professor] would be like... In the lecture, he would say like, "Oh, we’ll talk more about this in class. It is okay if you are confused. We will talk more about it in class.” And then he explained it and okay, that makes sense.

Mason explained his opinion about the amount of effort he put it in the flipped classroom:

There wasn't a workload, except they just replaced what time you normally would've done for homework with lecture. I definitely learned a lot just because I'd come in with no knowledge of accounting or anything like that. I'm coming away having learned a lot more. I'll pick up more next semester when I take the accounting II class. It's not an easy class, but it's not an overly challenging class. It's not the one you're going to drop if you have too much of a workload.
Students and online videos. On the other hand, the students had different perceptions about the online part for the implementation including the video. Andrea explained her opinion about the videos posted online, comparing them as if they were lectures:

I really like the online videos because it helps me prepare for what we’re going to learn in class. It sets a foundation for applying what I learned and the activities that we do, so I think they are really useful in that. Like, we talked about the elaboration. I feel like if he [the professor] were to lecture for three hours and not use this video thing, we wouldn’t have as much retention of information, because we wouldn’t be applying it to any activities and he may not use as many examples from his own work, because he’s trying to get the content in there. Whereas, with these videos, he can do a little bit of each and we can apply it in class and he can still talk to us about his own personal things and help us when we have problems.

Miriam expressed her opinion by comparing watching videos with reading books:

For me personally using the videos, it’s nice because I don’t really like reading from a book, I mean with all these other classes I’m taking, and it’s so much reading and so having the videos and listening to him [the professor] to talk about it is just, I feel like the workload is so much easier I guess. It’s so nice not having to sit and read my textbook and honestly fall asleep because, you know sometimes it is very hard content, but having the videos just make it seem like this class is more bearable.

Sara expressed her perception about why she liked the online videos:

So if there is a section that I really like, if I watch it the first time through and I had no idea what he [the professor] was talking about… I can go back. I don’t have to sit there and wait for it to go back around or have to ask questions, I can just go back to where he was saying it and if I’m still confused, I have the opportunity to go into the class and ask him, “can you go deeper into this”, and half the time, even if I was confused before, so many other people were too, and he’ll say “I want to clarify the video”… he knows that he will need to go into more depth and he has the opportunity and the time to do it in class. And also with the activities it really helps too. And so that’s really nice that I can go back and watch the videos and parts and sections of [them].

Ann compared the online videos to PowerPoint lectures:

I guess like we were all saying, PowerPoints are really boring and so if you would just go through the PowerPoint in the class and lecture, I will definitely be somewhere else. So for him to make a video and then like they were saying,
elaborate on it, it helps me retain it a lot better especially when he puts it in his real life experiences you know something that you can kind of visualize. So yea I really like the online videos a lot better than just listening to PowerPoint lectures in class, and then when we actually go to class we can do hands on things so all the learning just goes together.

John also agreed with others regarding the benefits of having a video format instead of a lecture format:

I think that it gives us more time to do labs. We can do bigger labs, because if he [the professor] had to lecture for an hour on what we were doing then we wouldn’t have had time to implement the information. What I also really like is, when midterms and finals come up, I’m not necessarily going to remember everything that he’s ever said and I can go back through the video and be like oh right, that’s what a [pop shirt] is and have the same lecture again if he was just talking.

Student accountability in watching the video lecture. Some students felt the online tasks made them more focused and engaged. John expressed his effort to do the online part by stating,

I usually do it at home…because it’s interesting enough to keep my attention, where, like PowerPoints? I would have to go to the library so I can be secluded because otherwise, PowerPoints, I get super distracted because I’m like, I can just stop it whenever and be on my phone and that’s what ends up happening. So with this it’s more like, okay, it’s only 18 minutes. Just like 18 minutes. I just got to watch it, take notes, and then do the quiz… It’s good for me cause it’s more engaging and interesting.

Miriam related a similar situation:

I use my laptop to watch the videos and take the quizzes. And I usually do it at home because it’s engaging and it’s not super long. It’s not like it’s an hour long video. The video is short and engaging, and it’s easier for me when I just sit down and do something for however long it takes rather than breaking it up, because then I get distracted and I forget what I learned, or I forget what I was doing. So I usually do both the quiz and video in one sitting.

Sara had a different view of engagement watching the online lecture:

I sit at my desk on my laptop, because I can’t do it on my phone, my screen is too tiny. But I’ll shut my door, and I have to have background noise, cause that’s just how I study. So usually I’ll pause the video and I’ll take my notes, so while the
video is paused I have to have the TV going, or I usually have Netflix on with my headphones in, and then while I’m writing the notes, I just have that noise in my ear. So I’m kind of distracted but not as distracted if I was to come here at the library. I get distracted by movement and so I have to be completely alone to do things.

Mason added some benefits of online lectures for him compared to in-class lectures: “I prefer looking at those slides versus having him [the professor] on there trying to explain it, because at least you're close up and you can see. He's pointing to [key points] and writing on [slides] and all that other stuff.”

On the other hand, some of the students mentioned multitasking while watching the online lecture. Noah said, “I'm on my phone more than I would be if it was in an actual classroom, but it's not like I'm on my phone the whole time. I'm paying attention.” Then he added, “Sometimes if a game is on, I might turn it all the way down, the TV, and then turn my laptop all the way up, so I'm listening to the lectures and going back and forth in the game.”

Some students who were required to read the book as their main online task had different situations. Alex stated,

I can't stand being limited. If I'm made to sit there and read something, I won't be able to focus on it. I often pick up the book and read a couple pages. Maybe two to five pages, and then I'll put it down and make dinner or something. Then I'll pick the book back up. I definitely check my phone and do other things while I'm trying to read.

Lane was in a similar situation while reading the book:

I'll take notes while I'm reading the chapters, but if my phone buzzes, I'll stop and check it. Which is harder to do in class, because if you're discussing something, and you look at your phone, all of a sudden you've missed so much. If I'm just by myself working on it on my own time, I'll usually check it.

**In-class effort.** Some students explained their feelings toward in-class time and how that affected their engagement. Ann said,
For me I am so much more engaged in class. You know, not having the lecture for the first hour and half or just listening to him [the professor] talk, I just have more interest in the class and more interest in the materials. And I’m not an Anthropology major, I mean to be completely honest, like “oh great, we’re going to look at rocks the entire semester.” I was so excited [being factitious]. And so you know, after the first week I was like, okay, this class is dumb. And then once I started actually learning the material and having the video online and not having to dread going to a three-hour class, I had more interest in the material and I really enjoyed it and I can go to my other friends and be like “hey this is what I learned in this class” and it’s, it’s a class I look forward to, and that’s a lot to say. There’s a lot of classes that I dread going to.

John explained his effort in the class:

I thought I would hate it, but actually, the three hours fly by because it’s really hands on. So I’m definitely more engaged in this class like he [the professor] was saying. The [online] pre-lecture before, I think really helps me, because it’s not like you go into a lecture and they lecture for like an hour, and they are like okay, now let’s apply it and you’re like, “haven’t we done enough”? My brain is stuck, and I definitely don’t want to talk to people and try to apply this, so it’s nice when we have the video lecture beforehand, and then you have time to digest it and then he [the professor] brings it back up, and you’re not fried because you just talked about it for like an hour, so [you’re] definitely more engaged.

Jill also explained her effort during the in-class environment:

When there's long lectures, even if I'm not on my phone or something, I'll be drawing in a notepad. Versus, in this one, she [the professor] kind of forces you to engage, which is good. She'll pair you up, and you'll do teamwork things, or you'll do your own mini-lectures on one question. Every student has to do lectures and stuff. I am much more attentive this way, because you're constantly doing something different. It's not boring. It's more you actually talking about it, versus her explaining it, and you just sitting there listening.

**Monitoring.** The only theme mentioned in monitoring was some students felt that being in the same group with the same students every time could affect their engagement. Some felt their professor did not pay enough attention to their feedback in asking her to change the way she divided groups. Jill stated, “I've asked, ‘Can we choose our own partners?’ and she [the professor] shuts it down.” John added, “I wish we could choose. I know she's [the professor] trying to get you to see a different opinion, but if
you're already paired up with the same person anyway, there's no point.” Kim also agreed by stating, “It does get boring listening to the same partner.”

**Process.** Some students expressed their feelings about the class in general from their experiences. Ann stated,

I’d say, don’t blow it off in terms of watching the videos, because you’re like, “oh, it’s just a video, we’ll go over it in class”; no, these videos really help you prepare to be engaged in your table group when you do lab activities and understand the entire concept of what you are even talking about that week. So just because it’s an online video doesn’t mean you shouldn’t invest yourself in it as much as you should have if you were doing a lecture. And then mentally prepare yourself for three hours because it is a long time, but if you’re prepared and have things to get you through it, then it’s going to be a really good experience.

Alex discussed how the class time was effective, made him feel engaged, and that led to the time passing faster:

Even though this is my longest class, it usually goes by pretty quickly. Just because we're always doing something. The lecture classes, even though they're only 50 minutes, sometimes I feel like it takes a long time because you're just listening to the teacher talk about stuff. This, you get to listen to what your peers think too.

Kim agreed and added,

Being more engaged passes that time by a lot faster. It also helps in, say there's one term I'm confused on. When we have a discussion, and people are talking about it, you can have two different views and put it together. Along with the instructor's view. It's nice to have everybody talk about it.

Olivia expressed her experience about her class: “If he did this in a History class or a Math class or something, it'd be a whole lot different, but I think because of the subject that we're talking about, there's not a whole lot. He tries to get everybody to interact by telling examples.”

Zoe also talked about how her participation increased because of the implementation of the flipped classroom: “I'm a pretty quiet person in general, but I think
I participate more in this class than I do any of my other ones.” She added a comment concerning the success of the implementation: “I think this is just kind of a hard class for a lot of people, so I think that in order for everybody to understand it, you have to have a lot of reinforcement, which [the teacher] was really good at.”

Components. Some of the students who had classes offering the main lecture content through a video format had expressed their opinions of how they worked together to impact their engagement, especially in the classroom. Miriam stated,

Watching the videos online for class, you’re engaged more. I mean I get so bored just listening to professors talk, I mean quite honestly it’s boring and you know then your mind wanders off “well did I do this” because you’re not paying attention to the lecture. And so watching the videos beforehand, you know, it does help knowing what we’re going to be learning about and it does help like prepare for like what we are going to be doing and at the same time, I don’t know, I just like it.

Miriam added,

So I think for this class in particular, my engagement is more, I have a deeper concept of the material beforehand that I feel like I can participate, very confident in what I’m saying and…that makes me feel ok to start working on whatever activity that we are going to work on and that my peers also know what they are talking about too. So then we can really get our work done and if we don’t, we can ask [the professor] and we can really be engaged and have this super connection because we all are on the same page. If we’re all on different pages, it kind of makes the workload harder, and then you’ll have to like, like sometimes you don’t remember everything, and so somebody else does. So it kind of covers all of your bases which is really nice.

Emily also agreed with others by stating, “I felt engaged. I felt like I knew some of the stuff already from watching the videos. I feel like the videos helped [with] him [the professor] going over it in class.”

Alex explained how missing doing online part affected the in-class component:

I feel like if you don't read the chapter before, everyone is talking about stuff, and they're all engaged, and you're just sitting there trying to learn. Sometimes, if I haven't read the chapter, I'll read it or skim it while we're sitting in class, to try to...
understand what's going on. I do think it's important to read before. Same thing. For some reason, I believe if you were to watch the videos before you read, I think there would be so much missed information that you wouldn't pinpoint the key stuff that we would talk about in class.

**Treatment specification.** Students mentioned different points about the timing of some events that negatively impacted their engagement in the flipped classroom.

**Having a lecture after mostly flipped classroom.** Some students expressed how having an in-class lecture after viewing a video immediately made them disengaged.

Sara stated,

I’m usually really engaged…I’m really faithful about watching the videos. The one instance when I really wasn’t, was the first week after spring break. But then we had a snow day that Wednesday and then we had class again, and we didn’t have a video because he [the professor] was being nice to us for spring break. And then he didn’t assign us one because we had the snow day. So we spent two hours lecturing and about 30 minutes into it I was like, my brain was dead. It was too much. Especially when we hadn’t been doing it [watching the video] all semester. We weren’t ready for it, and he was just throwing all this information at us, and suddenly, I don’t know how many people were actually listening.

Andrea added,

Every class, I feel like I’m really engaged and I’m really interested and listen to what he [the professor] actually has to say, but yea, after spring break - that lecture, that was the first time he had done that really, I couldn’t tell you anything we talked about. I for one fell asleep, I felt so guilty because every time I woke up, he kept looking at me. I felt bad because it was so long of a lecture and he has a soft voice, so it was putting me to sleep.

John agreed, adding,

That’s exactly what I was going to talk about. I have done all the videos and all the quizzes and I’m engaged in that class, I’ve been engaged every week. And there was that one week where we just did lecture, and I thought I was going to die. Seriously, it was one of the worst things ever. I’m sitting here and I can’t think anymore. He’s [the professor] like trying to get us engaged and like ask questions and I’m like dude, I can’t. There’s no way, I can’t do this. And so that was like the hardest week. I was like oh my gosh, never again can I have that ever happen. To be completely honest, I don’t remember that lecture.
**Long review with repeated information or activities.** Zoe talked about repeated information and how that affected her engagement:

Usually I don't engage if it's something I already know, but if there's something I have questions on, I'll usually ask questions, whether if it's just me and one on one, or I raise my hand and I ask out loud. He [the professor] does a really good job of answering them no matter what the question is.

Noah agreed: “Sometimes it was a little boring because we had already watched it, but a lot of the time, I had questions about it. It helped to like go over it again.”

Emily thought the reviews negatively affected her engagement:

The class time felt more like a study hour, because we had learned the concepts the night before or whenever we had watched the videos. I'd say about half and sometimes three quarters of the class just felt like review. It felt like a study hour. Maybe that last chunk of class, it's just doing some examples, applying it. Sometimes to me, it felt like “I don't even need to be in class for those first thirty minutes because it's just rehashing everything I heard the night before.” Those last 30, 45 minutes were when I felt more engaged. More often than not, I would just come in, sit down, and kind of check out for a little bit. In those last 30 minutes, it was like all right, now let's put some work in.

Mason added,

A lot of the time I wouldn't really pay that much attention in the beginning unless he [the faculty] was answering questions I was confused about too. Towards the end, you kind of have to be [paying attention] when he's giving you problems to do.

If the faculty required a similar activity in both online and in-class, this also led to student disengagement. Abbi addressed the negative affect of requiring students to post activity discussions with other students and then discuss them again in class by working on activities together. She stated,

It definitely makes class more interesting to be there. I also think, for me at least, [the online activity] takes away the value of [the in-class activity], if that makes sense. It's almost, we're there, and we're doing these activities, and they're always kind of different. It's fun to interact with different people, but at the same time, my mindset is that it's not really necessary. We have everything we need online.
Themes Related to Research
Question 4

Q4 What recommendations can be provided to improve student engagement in the flipped classroom?

A list of recommendations was provided by faculty and student participants to address this research question.

Faculty participant recommendations.

Identify student characteristics. As the professor implementing a flipped classroom, students’ characteristics needed to match their situation for a better fit.

Faculty Participant A said,

You never get perfect engagement. I've discovered, for the most part, that is due to a couple of factors. There's always a few people that are just not interested or not prepared, so they don't know what to say. They're just checked out. There's also always a handful of students that are just really shy in that regard. I had one student. She's really smart, and great, but she almost never says a word in a big class discussion. Almost never, but in the group of five or six, she's talking up a storm. I found those small groups pulled out the shy people, and sometimes pulled out the disengaged, uninterested people as well, because they felt obligated to their peers to help make this activity successful.

Match the student number with the activity. To increase student engagement, matching the groups with the activities guaranteed better engagement instead of big groups with a short activity. Faculty Participant A stated,

Make sure whatever they're doing requires everybody to be involved. If there's something that one or two people can do, and you've got six people doing it, there's a good chance two or three of those six might not really participate. Also, make sure it…doesn't seem like it's busy work. Make sure it's connected to the learning objectives, or whatever. They can see that, or explain it to them, why this matters. Even they don't really care, if they think it matters, they feel like it's not wasting their time.
Reduce online discussion board activities. For a flipped classroom to be more effective, having no discussion board activities would enhance classroom engagement. Faculty Participant A mentioned,

Well, based on my experience in teaching online classes in general, using discussion boards, I don't think the discussion board would improve it. I find that people either don't participate in the discussion board, or they do just to check a box that they've done it. They don't really say much of anything meaningful. It doesn't really turn into a synergistic discussion. It's more a bunch of people trying to get their discussion board points, so I don't think that would help.

Connect the weekly activities with a big or final project. Enhance learning experiences by connecting students with what they are learning to their activities, thereby involving them in the project. Faculty Participant A stated,

I had a grand plan to have a big class project that was going to connect all the activities. I reorganized my whole syllabus to fit this project. In the end, I didn't do it. Mainly because I couldn't get the materials ready. Like I said, hypothetical research scenarios, where they [student] would have to discuss how they would use methods, or which methods they would use. That forced them to go back to things we had done weeks before to reconsider them.

Connect the content in the videos to the quizzes to increase the value. Put value for the quizzes in the course and connect the content presented in the videos with quiz questions, thereby increasing student performance and engagement in the flipped classroom. Faculty Participant M expressed,

Quizzes have to have more value. Don't call it an exam but call it something else...[such as] direct video testing so they know they have to watch [the videos] in advance. I was thinking, “read, watch the video, then do what you want. Do them all five times or one once, just so that you get them.” It didn’t really work that way, and I think that I told them, “not that it is extra, it is the same stuff just a different format. I hope it is helpful for you.” So, I think they felt like everything was optional. They had to know them, but they would do them in class. I think I dropped the ball there. So, a better practice would demonstrate that they actually read the text and watched the video. Examples specific to the chapter videos would capture their motivation for preparing better.
Avoiding offering quizzes in class instead of doing group activity. Always have active learning in the class time to make students engage more. Faculty Participant M stated, “Don’t give quizzes based on your lectures, the students are silent during that. Have them work in groups as much as possible, especially early in the class period--it opens them up for the rest of the period.”

Students’ recommendations.

Meet students’ learning characteristics. Offer an option to work as individuals or in groups. Miriam stated,

On some activities I feel like that, I wish I had done it on my own so that I had mastered it...Sometimes when it’s a group activity, I let other people do stuff and I kind of let them take the lead, and I’ll chill in the back and I’ll do whatever. But I feel like sometimes I wish I were to do more one-on-one stuff so that I’m forced to do it myself and I’m not letting things slide and letting it be that its okay, it’s somebody else’s work. Cause then I feel like I don’t have a fuller grasp on whatever that so and so got to do.

Modify online content and put value for the videos. A recommendation was online videos should be more effective and have a purpose, or do not include the videos if they are extra. Abbi stated,

I think she [the professor] does a great job in class, trying to keep us engaged. The only thing I'd say she could change, and it doesn't really have to do with student improving, I don't think she has to do all those extra videos and stuff, because a lot of people don't watch them, and most of us only do it if we think it's going to be on the test. I don't think that helps our engagement, but I don't really know how to change it to help either.

Have a variety of in-class plans and activities. Using the same type of in-class activities every time for the entire semester makes students less interested and engaged. Kim stated,

I think she does keep us engaged most of the time. But it's the same thing over and over. Every time we go to class, we know we're going to do a mini-lecture. We know we're going to get paired up, and I always get paired up with the same
person, because we all sit in the same places, and we number off. I think the thing she could do is change it up a little bit. Other than that, I think it's good.

Jill added,

I just think that the activities we do in class need to be changed up. She needs more variation in the activities we do. At first, I felt like they were really engaging, and interesting to do. Now they're running dry, just because we've done it so many times, and we know what we're going to do.

Class offering time. Some students thought offering the class in an early time frame reduced the engagement level for the flipped classroom. Noah stated,

I've noticed it really depends on the time of day. Last semester I had a class at 11:00 a.m. too. It was my sociology class. Everybody was relatively quiet. She would sit there and try to get people engaged. She's an amazing professor and people just wouldn't engage. I had her again this semester and I had her in a 3:30 and it was a whole different atmosphere. I think just with everybody, like their workload, morning classes are just less. I think if the class was later in the day, people would be a lot more interactive.

Summary

This study focused on evaluating flipped classroom implementation with trained faculty to enhance student engagement in higher education. I followed Patton’s (2008) utilization-focused evaluation. For the purpose of this study, I focused on implementation evaluation using the five main components--effort, monitoring, process, component, and treatment specification--as general themes to answer the research questions. Under the general themes, I created sub-themes that emerged from the coding data. Some of these sub-themes, in the first research question analysis under the effort component of the implementation evaluation, provided in-depth descriptions related to the implementation. Faculty participants mentioned how some of them set their goals, decided their roles for the implementation, and described their actual implementation for online and in-class time. The second and third research questions asked the opinions of
the faculty and student participants concerning the flipped classroom implementation experience. Additionally, participants reported the flipped classroom impacted enhanced student engagement. From the analysis of the fourth question, the participants for this study provided valuable recommendations to improve student engagement in flipped classrooms for better implementation in the future.
CHAPTER V

DISCUSSION

Introduction

Students prefer to learn using new, different ways, especially if it includes technology. Students can be more engaged if technology and activities are used. Their concern is how the teacher uses these tools. How can teachers use technology and activities in an effective way to increase student engagement instead of giving students tasks that seem to be just another added assignment? This qualitative study addressed the problem of discovering the effectiveness of flipped classroom implementations by trained faculty members for the purpose of enhancing student engagement in a higher education setting. An implementation evaluation was applied to three trained faculty members and their 14 students for a total of 17 participants. The study focused on collecting data from individual interviews, focus group interviews, online observations, in-class observations, and artifacts. The purpose of my study was to discover answers to the following four research questions:

Q1 How do faculty members who had professional development experience the implementation of flipped classroom environment?

Q2 How do professors perceive student engagement in a flipped classroom environment?

Q3 How do students perceive student engagement in a flipped classroom environment?
Q4 What recommendations can be provided to improve student engagement in the flipped classroom?

This final chapter provides a comprehensive discussion of the findings, addresses more details by first answering the research questions, and then discusses the research in general through the use of implementation evaluation components. The discussion relates the findings with main points of the literature review provided in Chapter II. In addition to discussing the findings, I also discuss the limitations of this study, provide recommendations for future studies, and complete the chapter with an overall summary.

**Overview of the Study**

This study was designed to remedy weaknesses of and be different in its purpose from previous studies by focusing on faculty members who had intensive professional development concerning the implementation of flipped classrooms and to discover how that implementation enhanced student engagement in higher education. Moreover, the study utilized faculty members from different disciplines (anthropology, sociology, and business) to examine this instruction method from different aspects and practices in higher education settings.

In general, the study showed strong evidence supporting the effectiveness of the flipped classroom in terms of student engagement. Three trained faculty participants followed the implementation of the flipped classroom as was addressed in their plans. Two faculty participants who conducted the full implementation were very confident in teaching the lesson and controlling the class and one faculty member who was testing a partial implementation was very focused and encouraged in how to modify the implementation for future classes. The three faculty participants had a good sense of what class components were working and what needed to be changed. Mainly, they had
an awareness of each student’s performance and feelings toward the class and their students’ engagement and outcomes, not just from their grades but because of the nature of the flipped classroom model--their relationship and role in the class made it easier for them to understand. Although each faculty participant had a different way of implementing the flipped classroom, they were able to evaluate their ability to present quality knowledge to their students and not just to finish the class requirements; they already had in mind future plans for better practices. Even if some faculty participants questioned whether or not the improvement of students’ performance was related directly to the flipped classroom model, none of the faculty participants expressed displeasure in implementing flipped classroom instruction in their classes or wanted to abandon using it in the future.

Students’ perceptions were also a target purpose for this study. Students in the findings stated their role in the implementation and how they prepared for their class. In general, most of the student participants did not express many negative opinions about their experiences in the flipped classrooms and their recommendations were in line with making their professors’ implementations more closely aligned with the idea of the original concept of the flipped classroom.

Discussion by Research Questions

Research Question 1: Faculty Participants’ Experiences in Preparing for Flipped Classroom Implementation

The findings showed faculty participants implemented the flipped classroom using a systematic process. The process needed a professional effort and viewpoint to connect the pieces of the class together to make this implementation ready to use as an
instructional method that had value and was of high quality for students. The following section focuses first on some important parts mentioned by the faculty participants, which were needed for preparation before starting the actual flipped classroom implementation. Accomplishment of this preparation by the faculty affected the success of the implementation experience and decreased challenges during implementation. From the findings in this study and as faculty participants expressed, the four most important faculty preparations before the flipped classroom implementation that affected ease of implementation and the evaluation were sufficient effort in preparing materials, deciding goals, reviewing material, and preparing for online content.

**Sufficient effort.** The findings first showed the flipped classroom model needed sufficient effort from faculty planning to use flipped classrooms as the teaching model in their courses. This finding was consistent with previous research; professors who were planning to implement flipped classroom process had to put in the effort of preparing materials, creating videos, and designing quizzes for each lesson (Enfield, 2013). If one of the faculty members was a novice in flipped classroom management, meaning he or she was converting from using a traditional lecture style that depended on face-to-face lectures and writing on a board as the only tools and then decides to convert to a flipped classroom, the conversion needed additional effort and time to be successful. This study included one faculty participant from the three faculty participants who only implemented the flipped classroom part of the time. This class faced the most challenges and still needed more effort to be successful in current and future implementation.

**Deciding goals.** The second important preparation before the implementation was deciding specific goals for the flipped classroom implementation. From the findings,
the three faculty participants showed their concern regarding goals for the implementation. The participants’ main concern was to make sure their experiences had an educational purpose. Their goals focused on students to keep their level of interest high with this big shift in teaching, to increase their participation and engagement, and create more time for the students to be involved. This finding ran counter to the previous literature review that stated faculty members implemented flipped classrooms with different goals and purposes (Naccarato & Karakok, 2015).

**Reviewing materials.** The third step in preparation was to review existing materials and learn needed software for recording videos. The faculty participants spent time and thought in this study to work on reviewing and highlighting the most important content to teach to students. Then they learned technology tools and software to record their video lectures and edit them as needed. As two of the faculty participants mentioned, the most effective way of recording video lectures was through the use of multiple short videos separated by topics. This meant putting aside time for recording lectures each week and posting them online. In the same way, faculty participants expressed needing time and effort to create, prepare, and evaluate different activities for use in class time. This finding was in harmony with previous research concerning faculty perceptions about flipped classrooms in higher education--faculty members shared concerns about different issues such as the time commitment and amount of workload needed to implement flipped classrooms in their teaching instruction (Wanner & Palmer, 2015).

**Preparing for online content.** The fourth element needed before implementation of a flipped classroom was to prepare for online content by recording some videos. The
participants needed to create video lectures that connected the video lecture content to
group activities in class for each lesson in the course. The three faculty participants did
prepare videos but not all of them acknowledged them as a main resource. In addition,
not all of the faculty participants posted the videos for each lesson. These three faculty
participants worked to provide videos by themselves and with different types of software
but the issue that affected the video lectures most was whether or not the posting was
used as a primary or additional resource. In this study, using the video lectures as a main
resource was important for them to be counted as a successful part of the experience of
creating related group activities in the class time. This finding was broadly in line with
previous research that claimed the strength of flipped classroom implementation came
from designing class activities to be related to what students learned from the online
materials (Enfield, 2013).

**Other thoughts before implementation.** Additionally, after preparing for the
flipped classroom before implementation, the faculty participants needed to consider
some important points that could lead to successful implementation:

*Replacing video lectures with readings was not a good idea.* Flipped classrooms
need to have a complete online video lecture relating to the lesson content and activities
during class time. Thus, the online lecture should not be replaced by reading articles or
chapters for every lesson. This finding was broadly in line with a previous study by
Galway et al. (2015) where the need to ensure the connection between the online and in-
class activity was an important component in implementing successful flipped
classrooms.
Reminders are important. Faculty participants used the management learning system as a part of the online lesson; it not only provided the materials for the lesson but also monitored each student’s time and accomplishment of watching the video lecture. Faculty participants helped students to do their job by sending a reminder by email or posting an announcement. Some of them even sent a text message to students’ cellphones to keep them updated and to remind them of their role as students.

In summary, flipped classrooms contain two different components (online and in class) and each one of them includes different parts (quizzes, videos, discussions, readings, projects, exams, and activities). Each faculty participant used different aspects of flipped classroom components depending on the course, the nature of its information, and faculty preferences. The two main components were systemic so faculty participants needed to be sensitive to working on both parts and providing organization for each part with connections. These connections showed whether or not faculty participants were striving to meet an ideal close to the example of flipped classroom practice. Clukey (2016) explained the lessons she learned from her first experiences with a flipped classroom. She felt in the beginning it was difficult for her in the preparation of student assignments. She learned she needed to be clear about what her expectations were for her students as they prepared for work. The wording of instructions was extremely important and she sometimes had to rework the wording several times before arriving at a final set of instructions. Often, when her students were underperforming, she found her own lack of clarity was a factor; when she became more clear in her expectations, her students displayed more depth and thoughtfulness. Another lesson she learned was the importance of verifying what students did in meaningful ways. With all the needs of
preparation and challenges presented, the training helped faculty participants to be more knowledgeable and to analyze and self-evaluate their performance in the implementation. None of the faculty participants skipped the main two components (online and in class) of the flipped classroom model but each one of them used different designs and components that fit their course.

**Research Question 2: Faculty Participants’ Perceptions of Student Engagement**

The findings in this study also expressed faculty participants’ perceptions regarding the implementation processes in general and related to impacting student engagement. This section addresses a recommendation in a previous study stating a need to explore faculty perceptions about the flipped classroom (Fraga & Harmon, 2015):

It is clearly evident that more research is needed about the use and effectiveness of the flipped classroom model of instruction. There are many questions about this instructional model of learning that remain unanswered. Some include the following: “What are the perspectives of teachers who use this model on instruction?” (p. 24)

The faculty participants had some positive and negative opinions depending on how they implemented the flipped classroom including the engagement of students and the environment. Faculty participants who fully implemented the flipped model had positive opinions about the implementation and student engagement, finding the model helped increase student performance and grades. This finding aligned with a recent study conducted by Creekmore (2016) who experienced a successful flipped classroom implementation in his class from students’ perceptions and where the improvement of the flipped classroom positively impacted students’ engagement, increased students’ grades, and received a positive evaluation result for the class.
On the other hand, the faculty participant who tested a partial implementation of the model expressed some negative opinions about her implementation and a feeling of confusion about what content to present regarding the nature of the class. The testing process for the partial implementation made the model more difficult to present but even with this partial implementation, the faculty participant observed student engagement only negatively affected some international students. This issue related to challenging students in general and yet still addressing the needs of specific international students. According to recent studies that included international students in flipped classrooms, literacy needed to be considered when providing connections of the content to the students’ academic program in a relevant way within flipped classrooms, especially for international students. According to Hughes, Hall, Pozzi, Howard, and Jaquet (2016), international students can learn and benefit from the flipped classroom if the instructor provided connections of the content to the students’ academic program to ease the transition to the flipped classroom model.

Student engagement was a primary goal faculty participants wanted to observe in their classes as a result of implementing the flipped classroom. However, what the findings showed was the biggest change for the flipped classroom model lay in their role of monitoring their courses. This act of monitoring involved students and faculty becoming more interactive than they were in a class with just lectures. This interaction was effective in enhancing student engagement and performance. Also, mentoring led faculty participants to know the students better as they discovered their students’ characteristics and learning styles. From the findings, the faculty participants showed concern about their students’ performance online and in class, they noticed the students
who did not do the requirements or felt too shy to participate. The faculty participants worked hard to help their students, not just to pass the class but to learn the material in depth. The faculty participants showed motivation to change any issue related to individual students’ learning to make it a successful experience. This finding agreed with Nwosisi, Ferreira, Rosenberg, and Walsh (2016) who stated,

The philosophy behind the flip is that teachers can spend time working with students who need their help in the classroom and students can work together to solve problems rather than sitting home alone with work they might not understand with nobody to ask for help. (p. 348)

Regarding the online format, the study found the faculty participants who used multiple short videos specifically named by topics felt this was an effective way to ensure students watched all of them and took responsibility for taking notes. Faculty participants who also provided clear descriptions and directions for the students about what they should do for the online part, how many minutes each video should take, and what the next step was after watching the video had less questions from students about class requirements. Moreover, requiring a quiz after watching the video lecture online enhanced learning and in-class engagement. This finding was consistent with previous research by Enfield (2013) who stated the required online quizzes after watching the video of each lesson helped increase the rate of student commitment to completely watch the video.

Also, some faculty participants expressed in the findings that implementing the flipped classroom model was a way for them to organize the content with the most valuable information for students by spending class time in active learning. The practice of those important lesson concepts led to the enhancement of positive student engagement. This finding ran counter to that of Enfield (2013) who stated the strength of
flipped classroom implementation came from designing class activities related to what students learned from the online materials.

The findings also showed how important it was for some faculty participants to have all the components related to the same main idea or same content or objectives. It was important to recognize students’ need to have clear directions for using the components to eliminate confusion. At least two of the faculty participants tried to help students by guiding them through online, syllabus, and/or class time, showing them how they could successfully accomplish the requirements for the lesson.

From the findings, some faculty participants distributed grades in flipped classrooms differently to give each component more value. Two of the faculty participants had successful experiences in weighting the grades in the syllabus by including watching the video lectures, finishing the quiz after watching, participating in the review at the beginning of each class, and participating in the activities. In this way, the faculty participants noticed increases in students’ engagement, performance, and outcomes.

Moreover, faculty participants indicated class time would never fail to be a valuable part of flipped classroom model implementation. All three faculty participants related successful experiences using active learning during class time. From the findings, faculty perceptions and observations suggested if professors used active learning as seen by practicing in-class activities related to the online content, it guaranteed an impact in enhancing student engagement and learning outcomes. Faculty participants felt by applying active learning in the flipped classroom implementation, the students learned the information and applied it in their life practices. The faculty participants also felt student
engagement was enhanced if they provided enough activities to fill the class time and if they gave each of the students in the group a role in answering the activity’s questions. This finding was in harmony with research that established ways for students to become actively engaged in course activities (Galway et al., 2015).

In summary, faculty perceptions about student engagement was implementing flipped classrooms seemed to be highly related to enhancing student engagement. Thus, flipped classrooms, when prepared and implemented in a correct way by trained faculty participants, led to positive student engagement.

**Research Question 3: Students’ Perceptions of Student Engagement in Flipped Classrooms**

In this study, students expressed their perceptions about the flipped classroom experience and its impact on their engagement. The study found students in flipped classrooms were required to put in effort and time in class preparation to have a successful learning experience and an enhanced positive engagement. Student participants talked about needing more time to watch the videos than in regular classes; the study also showed most of the student participants would prefer the required online videos to be more engaged. Therefore, student effort was a big challenge in this model--students had to watch the video lecture or read the material and then take the quiz or perform other activities before the class began. Aside from this effort, students had to understand the video lecture and take notes to be ready for in-class discussion. Moreover, from the findings, some student participants talked about higher demands in online preparation and engagement compared to other classes. Some students were more interested if the class had a video lecture available rather than reading material only. By
taking notes, completing the quiz, and then participating in a review in class, student participants expressed their ability to understand and do the activities. They also felt the professors were putting more effort into the class if the preparation included videos compared to just reading. These findings aligned with a finding from a study by Roach (2014) who stated,

By engaging students with a media-type that they may appreciate more than the standard textbook it is entirely possible that course material is covered more quickly because the students have a better understanding of the material before coming to class, and thus deeper learning can occur in a short time period. (p. 83)

Some student participants expressed their role in the flipped classroom model as different than traditional models--they learned to be organized in obtaining knowledge. The flipped classroom model taught them to be accountable to do the required preparation and be self-learners to gain the knowledge, which the students cited as the two main advantages of the model. Therefore, some student participants adjusted well to their roles as a result of the class elements that defined their performance; monitoring their opinions was important. For example, as mentioned in the findings, some of the student participants who had a short review in their class were all committed to watch the videos before the class but some students who had a long review in class admitted to watching the videos either before or after class depending on their style of learning preferences.

Student participants dealt with the class as a collection of components that led to one goal. They expressed their opinions about the components and judged each component separately. First, they considered the purpose of the component. They considered whether it had any value related to another component and then they put the
important components together. Thus, based on that value judgment, they dropped whatever was the less important component.

From the findings, some student participants stated in the findings that different reasons encouraged them to complete the online preparation. Some reasons mentioned were feeling a responsibility for taking part in answering group activities in class and being mindful of being graded for watching or participating in group work. Thus, student participants in the findings talked about some issues regarding the online portion that should be organized with the in-class portion: avoiding repeatable sections such as having online lectures along with in-class reviews, having the same activities in class and in online group discussions, or requiring online quizzes and in-class assignments with the same purpose. Similar activities should not be offered because from some students’ perceptions those activities led to students’ disengagement and disorganization of the lesson as a whole. However, the majority of student participants liked the challenges offered by the flipped classroom, which increased their engagement.

Student participants also expressed their preferences regarding group activities. Most of the student participants preferred working together in class activity time, which led to enhancing their communication with others. Some student participants talked about their desire and willingness to join in discussion almost every time and looked forward to joining different student groups in their class to know more about others’ perspectives and thoughts in solving or doing the activities. This finding was broadly in line with previous research; the outcomes in other studies showed students themselves saw an increase in “participation and communication” in their classrooms, which helped promote a more student-focused environment “conducive to learning and success”
The primary part of the class where students most expressed their engagement was in performing the group activities. In the findings, a few students felt afraid in the beginning of the class because of the effort needed to fulfill class requirements. However, that feeling vanished after students tried the class and became adjusted to the requirements.

In summary, student participants’ perception about the flipped classroom process was it was an acceptable model for teaching. Most student participants reflected their positive experiences about the flipped classroom and its impact on enhancing their engagement. They were very confident in the model and had few major complaints, even with the class that only tried to implement the flipped classroom. Student participants in this study showed their learning felt less overloaded because the video lecture matched their generation’s need for technology so their learning was high quality but different than traditional classes. To enhance student engagement, student participants felt faculty needed to listen often to students’ voices about the class. The faculty should focus more on content that engaged students by creating activities that could lead them to share their experiences and where students could apply what they learned to their life. This made the flipped classroom model very different from traditional models where students were isolated through traditional lectures, putting them in a passive mode with no ability to offer suggestions to improve the class.

**Research Question 4: Faculty and Student Participants’ Recommendations**

Faculty participants and student participants shared different suggestions for the implementation and specific recommendations related to improving student engagement
in the flipped classroom. The first three research questions presented perceptions about some situations that increased or decreased student engagement. This question focused most on participants’ recommendations related to student engagement to improve future implementation of the flipped classroom model. The recommendations supported the results of the general successful experience of flipped classrooms for most of the participants in this study.

**Student engagement.** In this research study, faculty participants talked about different recommendations to improve student engagement in flipped classrooms. These recommendations related to the application of some type of modification in implementation that would positively enhance student engagement. Some faculty participants recommended having the students active in the class as the main purpose of the flipped classroom model. They encouraged participation in activities and recommended that others avoid spending time giving students a quiz they thought would make students quiet and non-communicative with no opportunity to share knowledge. This recommendation typified other practices; any mistakes in implementation by the faculty were seen in this study’s findings as leading to negative reactions by student participants who ended up disengaging in the practice itself.

**Variation versus routine.** Furthermore, to develop better practices for flipped classrooms, student participants in the findings recommended avoiding repetitive information or routine systems of implementation in the class. Student participants encouraged faculty participants to design their flipped classroom courses in various types of activities, to practice different ways of starting the class, and to use different tactics for
dividing the groups. According to students’ perceptions, these variations in place of repetitiveness would enhance student engagement.

**Enhance group activities.** Recommendations were also made related to enhancing group activities. From the findings, there were two aspects some faculty participants thought might positively impact student engagement. The first recommendation focused on improving the experience of some students in group activities, especially those who were not interested, not prepared, or shy. These types of students might have a change in attitude through a tactic of dividing the groups into a smaller number of students. This solution forced these students to be responsible or more confident to talk and share with others in small group settings. The student participants also agreed with this recommendation by sharing they requested the right of having an optional choice of working with groups or individually. This recommendation was broadly in line with a previous study (Clark, 2015) that implementing a flipped classroom as an instructional model of teaching could not only engage students but also improve the way the students participated. It helped students go from a less communicative and interactive surrounding to an environment that focused on fully engaging them in certain activities with other classmates (Clark, 2015).

The second recommendation related to group activities was to create activities that matched the number of the students in the group. According to the findings, the faculty participants recommended the instructor should ensure each student had a role to do with the activity required. The purpose of this recommendation was to avoid putting some students in the situation of being without a part to play in the activity of the group, which might lead them to be disengaged. This recommendation agreed with Hao’s
(2016) results when he discussed the needs of educators in adapting the flipped classroom to fit individual students, in providing interactive technologies, and/or applying focus group activities as ways of providing an in-class environment that led to engaging students by considering best practices for the flipped classroom model.

**Connect activities to a larger purpose.** Recommendations from the findings also included improving student engagement by connecting students’ activities in each lesson and applying them as a part of a related final project. The faculty participants wanted the students to practice solving problems and be able to transfer what they were learning from each lesson in their group to a bigger project. In this way, meaningful learning experiences would be created, leading students to have deeper thinking skills that enhanced their engagement for each lesson and throughout the entire course.

**Placing a value on important components.** The findings also presented faculty participants’ recommendation of ensuring a value was set on the important component in the flipped classroom--the component that would help students be more engaged and committed to accomplishing the task. The findings supported the idea of students who were seeking grades; some faculty participants believed grading components correctly could solve some issues that shifted students’ interest and engagement toward working on the component. Similarly, student participants also recommended faculty put a value on the video lecture, specifically to make the connection with other components. Otherwise, students felt this part should be deleted if it did not have an equal value or otherwise did not seem to be connected to the components that did have assigned values.
Implementation Evaluation of the Flipped Classroom Model

The following discussion section uses Patton’s (2008) implementation evaluation to evaluate the main points of the study relating to the five parts of the implementation evaluation (effort, monitoring, process, components, and treatment specification) from the researcher’s point of view as an evaluator.

Effort

As reported in the findings from faculty participants about the activities and resources used in the flipped classroom implementation, each of the trained faculty participants followed the same plan of implementation whether or not they were planning to implement their flipped classroom completely or partially. A great deal of effort was put into each implementation in actual practice but by the end of the course, each faculty participant self-evaluated his/her course and made even more decisions about modifications for future implementation. Those faculty participants who completed a full implementation because they experienced a high level of performance from their students felt their implementation experiences generally were successful. However, for the faculty participant who only partially converted her class into a flipped classroom to test the model, modifications were still clearly needed to improve the experience. Thus, from the findings, the implementation was different in how often they applied it--some faculty participants used the flipped classroom model for all the lessons and one applied it just for specific multiple lessons during the semester. In general, the implementation was effective in helping students be more actively engaged for all three faculty participants but the amount of effort in creating the flipped classroom experience was better for those who were fully committed to the model and provided all the main flipped classroom
elements in the lesson. Baker (2016) stated a way of transitioning to a flipped model was by starting as partially flipped. This could reduce the risk of difficulties in flipped classroom implementation from the faculty’s perspective by starting small, by putting effort in learning software to record the lectures, choosing one class to implement a flipped model, and then choosing one unit to implement it. In this way, faculty can evaluate his/her implementation for the unit, make the necessary changes, then transfer the experience to desired courses to flip them. Thus, the faculty participant who was testing a partial implementation of the flipped classroom was correct in starting the implementation but she missed providing the main elements in the lesson.

**Monitoring**

To fairly gather information and data about flipped classroom implementation, time is needed for evaluation of the success of the model. This evaluation should take place after a minimum of two semesters of faculty implementation when testing the flipped classroom as an instructional method. While testing the flipped classroom, the professor needs to work on any needed modifications to reach the best fit for the course and students’ characteristics and needs and then develop successful experiences for the conversion to the flipped classroom. Faculty who are used to teaching using technology-based instruction, active learning, and blended or online settings would have to put less effort and time into converting their courses to the flipped classroom model and would require a shorter time for the course to be under evaluation. From the findings, it was apparent the faculty participants underwent a great deal of preparation--from testing the partial to the full implementation of the flipped classroom elements--and monitored their activities closely. This study included an observation of online monitoring through the
management learning system, which helped faculty participants evaluate the online
implementation as one of the main components of the flipped classroom and a part that
connected the in-class activities. The results examined whether or not the online
component existed, how well the online lecture was implemented, and how closely it was
connected to other processes.

**Process**

Training for flipped classrooms or any teaching methods is very important in
ensuring that faculty can successfully apply the implementation process. In this study,
the success of the flipped classroom implementation process was due not only to the fact
that faculty participants had intensive professional development before implementation
but the training was also the first step in preparing them for the process of change,
leading them to increase their confidence in their work, and helping them be more
creative. From the findings, it was evident the investment in faculty participants’ training
clearly improved their teaching characteristics, skills, and knowledge. As a result of the
training and recognizing the model was a process, the faculty participants in this study
were very knowledgeable regarding flipped classrooms and for what was working and
not working, especially for their classes and students. In terms of faculty perceptions
about enhancing student engagement in flipped classes, the evaluation resulted in
knowledge that student engagement was strongly related to aspects of applying the
implementation and the readiness of the faculty to have adequate materials and video
lectures before beginning the implementation rather than faculty training only. As a
result, those faculty participants who confidently proceeded with a full implementation of
the flipped classroom model and had enough videos and activities were more expressive
about the students’ engagement in their course than the professor who only tested the partial implementation of the model without enough resources. Additionally, student engagement was found to be related to the faculty participants’ approach of implementing the flipped classroom.

**Components**

In terms of the model components, the student participants seemed to engage most in watching the video lectures especially if the professor presented the content in an interactive and interesting way compared with video lectures that showed the professor talking or just reading slides. Utilization of each different component in the flipped classroom was a huge part of this research and was addressed in depth in the findings related to the research questions. The description of each component of the flipped classroom can help other educators compare their implementation by looking at similarities and differences. Educators can also use this information to examine their performance and find gaps to modify their implementation in order to have better practices. From the evaluation lens, each one of the flipped classroom components was independent with different formats (online, in-class) and used different resources (video lecture, activities); each component separately could provide rich information for students by enhancing problem solving skills. However, the flipped classroom components actually worked dependently with each other by completing their purpose of using online resources to give knowledge and in-class components to take this knowledge to a higher level of thinking by applying the activities in groups.
Treatment Specification

The findings provided very valuable and sustainable recommendations from both faculty and student participants to enhance student engagement in a flipped classroom. Thus, this section presents some treatment specifications as a suggestion for intervention from me as a researcher and evaluator based on the findings. These suggestions are given to improve future implementation and enhance the experiences of the flipped classroom for the interested educators.

First, the effort required by the faculty to convert a class to a flipped classroom could be a reason for other faculty members who have still not converted to refuse it as an instructional model. The amount of effort needed by novice or new faculty members also makes it difficult to convince other faculty to implement the flipped classroom because they might be fearful of being unable to give this amount of effort and think they might be challenged too much, which might lead to failure. Therefore, I suggest the university provide a teaching practice center for each building that has existing classes and faculty offices to provide faculty members with support. This center would help make the conversion to flipped learning easily accessible for those faculty who would like to try to implement a flipped model but are fearful of the amount of effort needed. This center would have instructional designers to help faculty members in flipping their classes by tutoring the use of new software in recording, providing services like a room for recording with a technology specialist, helping professors find academic materials, and helping professors create activities related to the course content. Moreover, the center could offer initiatives such as teaching rewards for faculty who use flipped
classrooms for the purpose of effectively engaging students and increasing learning outcomes.

Additionally, each department could provide a mentoring program for faculty members that includes teaching, advising, consulting, and helping faculty to collect data from students to work on modifying the class. Thus, students could be involved in helping the faculty; their assistance in monitoring in-class group activities would help ensure successful class experiences, especially for long class periods or classes with a large number of students.

Second, if faculty members want to test the effectiveness of their flipped classroom implementation or if they do not have full materials to flip, they should as a minimum start the implementation by using the following components with a few lessons per semester: posting an interactive video online that includes explaining the main content of the lesson, applying a quiz related to the video that is obtained preferably online directly after watching the video, and demonstrating activities in class related to the online content. Otherwise, students will express confusion regarding the course and will be disengaged by the components.

Third, even though the success of flipped classrooms is too complicated of a process to relate it to a single reason like training only, my suggestion is training is useful for faculty and could be offered in different forms to reach a variety of faculty members. Large numbers of faculty could be reached by offering such training as a webinar. Training could also be offered in a blended form through specialists or from faculty who have been recognized for their teaching practices in flipped classrooms at the same university or discipline. Training would still be very important for faculty members as
well as supporting their professional development to increase their knowledge and performance in teaching practices and acquiring new skills.

**Limitations of the Study**

Although this study succeeded in answering the research questions, several significant limitations arose concerning the methodology and data collection. First, the conclusion of this study could not be extended to wider populations by generalizing the findings due to the use of qualitative methods. According to Brantlinger, Jimenez, Klingner, Pugach, and Richardson (2005), the purpose of a qualitative study is not for generalizing a study but more for providing information based on descriptive language and discovering the data of specific cases. Even so, this implementation evaluation study was examined by using a variety of data resources and the detailed description for each case was provided to share the way each implementation took place and its perceived impact in enhancing student engagement. The opinions regarding the use of the flipped classroom model implementation from both faculty and student participants were used to present any problems related to the implementation and recommendations for better practices in the future. This study focused first on the main findings and then supported the main points by using the evaluation implementation general themes to understand each case individually. It then used the common points not to make generalizations but to understand the bigger picture of the three cases together so other educators could use the information provided to help them have a successful experience in their own flipped classroom implementation.

Second, the sample of this study was not large. Three faculty members and 14 students were participants targeted for this study. Another study might include more
trained faculty with their students to discover wider opinions about the implementation and its perceived impact in enhancing student engagement. Also, at the time of collecting data from the focus groups, one of the students was absent. However, the 14 student participants showed high interest and provided very helpful information for the study. In addition, an unexpected situation emerged for one of the faculty participants, which resulted in that faculty participant moving to another state. As a result, the interview was conducted through email because there was no available time to conduct it face-to-face even over the Internet. Despite this fact, the faculty participants were very committed to participate in the interview and the information provided was also complete and helpful.

Third, this study was limited to collecting data from three specific disciplines (anthropology, sociology, and business) at the undergraduate level in higher education. In particular, the study’s goal was to include the disciplines in this study because these disciplines were rarely used in previous flipped classroom studies. However, this still counted as a limitation; by expanding to more disciplines and involving different graduate and undergraduate course levels, the results could be used to generate more support for this study’s findings.

Finally, the study focused on student engagement and used a definition by Fredricks et al. (2004) that stated student engagement happened in three aspects: (a) behavioral engagement happens when students actively participate during class activities, (b) emotional engagement happens when students react negatively or positively about the learning process, and (c) cognitive engagement happens when students have the ability of gaining a higher level of understanding through scaffolding. This definition was combined with major components of student engagement including attention, curiosity,
interest, positivity, and passion students showed while learning or being taught a topic, which increased the level of motivation. The participants were referred to these components of student engagement before they began their interviews or focus groups. Data concerning engagement by the students were also gathered from the observations. However, other student engagement measures could be also used as assessments to support the findings.

**Recommendations for Future Research**

Future research could utilize a mixed methodology to include quantitative measurements such as a survey or questionnaire in addition to using observations, individual interviews, and focus group interviews. This might help to gain broader perspective on flipped classroom implementation and its perceived impact in enhancing student engagement. A suggestion in this study was to offer instructional designers and mentoring teaching practices. Future research could examine the situation for faculty who implement flipped classrooms after using the support in preparing and teaching the flipped classroom to see its effectiveness on faculty ease of preparation prior to the implementation.

In addition, a faculty participant in this study indicated international students had difficulties in flipped classrooms. Future researchers could specifically conduct research about flipped classroom and its impact on international students’ learning to understand their perceptions and the challenges of the flipped classroom model on their performance and learning outcomes.

Furthermore, active learning of the flipped classroom model was a large part of the successful implementation in this study. Therefore, future studies could discover and
test different types of active learning activities from different disciplines that worked best in various situations. These studies could help other educators use suitable activities and help them to understand which activities were most related to student engagement and the successful implementation of flipped classrooms.

Moreover, using an interactive video lecture for the main content in this study showed its effectiveness in engaging students. Thus, future studies could be conducted that describe whether a relationship exists between the way the professor recorded the video, student performance on the quizzes, and working in class activities.

**Summary**

This study’s focus was to answer three areas: the implementation process of flipped classrooms as viewed by trained professors, perceptions of faculty and students about student engagement in the flipped classroom, and recommendations presented from both faculty and students to enhance student engagement in flipped classrooms. For my analysis, I used the five components of Patton’s (2008) implementation evaluation as general themes and I identified sub-themes as needed under the general themes.

From examining the implementation evaluation findings, I gained a deeper understanding of the purpose of this study. Each of the findings of this study was interpreted by considering the research questions, using the five components proposed by Patton (2008) to explain the findings and the sub-themes that were created in the analysis, and finally connecting the findings with the literature review.

The future of evaluation is tied to the future effectiveness of programs. Indictment of program effectiveness are, underneath, also indictments of evaluation. The original promise of evaluations was that it would point the way to effective programming. Later, that promise broadened to include providing ongoing feedback for improvements during implementation. (Patton, 2008, p. 32)
The expectation regarding this study’s findings was the three faculty participants would have ideal classes due to more training and more practice with the flipped classroom model. That would in turn provide an increased teaching and learning experience than what was experienced in former models; the students could experience more quality in the teaching and learning environment, which should lead to enhanced student engagement.

The results of this qualitative evaluation study provided insights into the implementation of flipped classrooms and whether a flipped classroom under the direction of a trained faculty member enhanced student engagement in higher education. The literature review and results of this study provided more understanding for educators and evaluators and higher education decision makers. Also, this study could be used as a reference that provided guidance for flipped classroom implementation and how to provide an engaged environment for students in higher education. In general, the study covered an evaluation of the flipped classroom model for providing best teaching practices to benefit future students. Overall, this qualitative study with all the resources used to collect the data reflected successful practices and components of flipped classroom examples that enhanced student engagement.
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APPENDIX A

FACULTY MEMBER INTERVIEW QUESTIONS
Faculty Interview Questions

1. Describe your experience of implementing a flipped classroom, including technology preparation.
2. Describe the criteria you used to build the activities for each lesson before the class time. What was the main purpose of using this criteria?
3. How did you encourage students to complete the materials before the class time?

Flipped Classroom Implementation (during the class time)
1. Describe your role as a professor in the flipped classroom during the class time.
2. Describe the role of your students in the flipped classroom during the class time.
3. Describe the activities you used in the class time to provide different learning experience (group discuss, problem-solving, peer-to-peer)?
4. Within the different types of your in-class activities, which one did you think was the best learning experience for the students?
5. How did you fit all the flipped classroom components together?
6. Describe the strengths and weaknesses (or benefits or challenges) of implementing a flipped classroom?

Students’ Engagement in the Flipped Classroom

Student Engagement refers to the attention, curiosity, interest, positivity, and passion that students show during their learning or being taught topic, which increases the level of motivation.

1. Describe your experience with the implementation of flipped classroom and its effect on student engagement?
2. Were there any significant changes in student engagement for your flipped classroom from how you taught before? If so, what were these changes and what do you think brought them about?
3. Describe how students in your flipped classroom learn to become engaged. Where do you see this happen most? In which components? How?
4. Describe the ease of helping students to become re-engaged after an absence?
5. From your perspective, what was the most challenging aspect of implementing a flipped classroom in terms of enhancing student engagement?

Recommendation to Improve Students’ Engagement in the Flipped Classroom

1. What components of the flipped classroom do you think should be changed to help instructors increase student engagement?
2. What is your recommendation to improve student engagement in flipped classroom?
APPENDIX B

STUDENT FOCUS GROUP INTERVIEW QUESTIONS
Students’ Focus Group Interview Questions

**Student Engagement** refers to the attention, curiosity, interest, positivity, and passion that students show during their learning or being taught topic, which increases the level of motivation.

**Students’ engagement online**

1. From your point of view, what does it mean to “participate” in this class online?
2. Describe your ability to use the online videos to help learn the course content.
3. How do you think that watching the online videos before the class time affected your ability to be engaged during the class activities?

**Students’ engagement in the classroom**

1. How did your opinion of student engagement change after having participated in this class?
2. Describe two moments of your experience in the classroom - one in which you were successfully engaged and one in which you were not.

**Recommendation to improve students’ engagement in flipped classroom**

1. In your opinion, which components in of this class should be changed or added to improve student engagement? Why?
2. Do you have any recommendations to improve student engagement in this class?
APPENDIX C

ONLINE OBSERVATION CHECKLIST
Online Observation Checklists/Notes

Course name:  
Participant code#:  
Number of students:  

1. **Technology and Materials:**
   - List of the materials posted from the professor in the lesson:
   - Usage of technology in the lesson: video recording from the professor, YouTube from the internet, links to website, video conference.
   - Video time and number of the materials required for studying.

   Others:

2. **Pre-Classroom:**

   **The professor:**
   - Introduced the topic.
   - Had lesson plan.
   - Provided lesson expectation and directions.
   - Explained the learning objectives and outcomes.
   - Posted new instructional materials and Resources for the lesson.
   - Gave a quiz about the video provided.
   - Revised student work before the class.
   - Graded or gave points for completion and doing the requirement before the class.

   Others:

   **The students:**
   - Student signed in for the lesson.
   - Student posted questions for the professor.
   - Student actively participated in the discussion.
   - Student completed the quiz before the class time.

   Others:
APPENDIX D

IN-CLASS OBSERVATION CHECKLIST
In-Class Observation Checklists/Notes

Course name:
Participant code#:
Number of students:

The professor role in the classroom:
__ Walking around the classroom and guiding the discussions.
__ Asking questions to confirm student understanding and to draw out more discussion.
__ Answering questions that students bring to the class or raise during the class.
__ Having tactics of the dividing students to the group and giving role for each group or individual.
__ Supervising class discussion for the groups.
__ Challenging students individually or as a group.
__ Encourage the student to be engaged, motivated, and confident.
Others:

Demonstrate the activities:
__ Giving time at the beginning of the class to answer any questions student have about the lesson.
__ Addressing the students’ difficulties based on questions students bring to class based on the material they have read or watched prior to class.
__ Applying in-class activity strategies by providing clear directions to the students.
__ Following the timeline as planned by the professor and guiding the students to keep them on track.
__ Switching class activities or having a variety in the type of activities to engage the students.
__ Reminding students about their responsibilities after the class related to the same lesson.
Others:

The student role in the class:
__ Students ask questions in the beginning of the class regarding the content of the lesson.
__ Students express any opinions about the lesson or technical problems related to the online lesson.
__ Students show readiness for answering questions and reacting with the professor.
__ Students repeat questions about the activity strategies to be clarified.
__ Students join in groups to work flexibly and without rejection.
__ Students show engagement as a group or individual in doing the activities.
__ Student complete the task required as a goal for the class.
__ Student ask the professor questions after class.
Others:
APPENDIX E

INSTITUTIONAL REVIEW BOARD APPROVAL
DATE: March 11, 2016

TO: Fatimah Alebrahim
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [876539-2] Dissertation Proposal
SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE: March 11, 2016

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB’s records.
APPENDIX F

EMAIL INVITATION FOR STUDENTS
Hello All,

I am Fatimah Alebrahim. I am a doctoral student in educational technology department. I am conducting my dissertation about the Flipped Classroom and its effect on student engagement. I am sending this email to invite you to participate in my study by taking 60 minutes of your time to join a focus group interview that will contain approximately 5 students from the same class. Any participants who will complete the interview will get a $5 gift certificate. If any one of you is interested, please reply to this email.

Please don’t hesitate to contact me if you have any question: (aleb2305@bears.unco.edu)

Best regards,

Fatimah Alebrahim
APPENDIX G

FACULTY MEMBER CONSENT FORM
Project Title: Implementation Evaluation Study: The Effect of Flipped Classroom Professional Development on Faculty Members to Enhance Students’ Engagement in Higher Education.

Research Adviser: (Heng-Yu Ku, 9703512935, Heng-Yu.Ku@unco.edu)

Purpose:

This study will focus on a new instructional teaching model in education referred to as “Flipped Classroom”. Some aspects of the Flipped Classroom are a very current trend in educational pedagogy. Flipped Classrooms provide students with media lessons that must be completed outside of the classroom and prior to class. This is a two-step process that requires the students to access academic media outside of the classroom and then discuss and apply activities related to the content with the professor in the classroom. The goal of this research is to insure successful implementation of the flipped classroom instructional model in classrooms and that faculty need to be provided with sufficient resources and support to carry out this implementation. The purpose of this study is to discover the effect of implementation of the flipped classroom by trained faculty members in higher education for improvement of student engagement. The sample will include three faculty members from various academic departments who are planning to apply a flipped model in their classrooms and five students from each faculty members’ class.

Faculty participants will confirm their willingness to participate in this study by allowing the researcher to observe one flipped classroom class period and participate in an interview about the way in which they implemented their flipped classroom, their perceptions about the implementation and its effect on student engagement, and any recommendations they may have. The observation will last an entire class period, and the interview will take approximately 45-60 minutes to be completed. The date for both the observation and subsequent interview will occur approximately two-thirds of the way through the semester. The scheduled time will be chosen to allow participants sufficient time to practice the knowledge and the skills of the flipped classroom learned from the training. The interview will be digitally recorded.

Risks:

This project is voluntary and is a qualitative research designed to collect data for evaluation of the flipped classroom implementation from trained faculty members to increase students’ engagement. This project presents minimal risk to participants. No
identifying information will be collected about the faculty such as address and telephone or cellphone number. The emails for the participants will not be disclosed in any part of the study to protect privacy as much as possible. Due to the fact that the study is voluntary, the participant can choose to share or skip any question in the interview that they are uncomfortable answering. Answering the questions should not negatively affect the participants. However, if any participants face any discomfort, they will be encouraged to discuss their concerns with this researcher.

Participants will benefit from participation in this study because they will be able to provide honest feedback about their flipped classroom implementation experiences and perceptions. Such feedback will help to improve and possibly expand the quality of learning in higher education for future professors as well as their students.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

___________________________________________________________________
Participant’s Signature Date

___________________________________________________________________
Researcher’s Signature Date
APPENDIX H

STUDENT CONSENT FORM
Project Title: Implementation Evaluation Study: The Effect of Flipped Classroom Professional Development on Faculty Members to Enhance Students’ Engagement in Higher Education.


Purpose:
This study will focus on a new instructional teaching model in education referred to as “Flipped Classroom”. Some aspects of the Flipped Classroom are a very current trend in educational pedagogy. Flipped Classrooms provide students with media lessons that must be completed outside of the classroom and prior to class. This is a two-step process that requires the students to access academic media outside of the classroom and then discuss and apply activities related to the content with the professor in the classroom. The goal of this research is to insure successful implementation of the flipped classroom instructional model in classrooms and that faculty need to be provided with sufficient resources and support to carry out this implementation. The purpose of this study is to discover the effect of implementation of the flipped classroom by trained faculty members in higher education for improvement of student engagement. The sample will include three faculty members from various academic departments who are planning to apply a flipped model in their classrooms and five students from each faculty members’ class.

Student participants will confirm their willingness to participate in the study by sending an email to the researcher, allowing the researcher to conduct a focus group interview of five students at the same time. This focus group session will be about students’ perceptions about the flipped classroom implementation as used by the professor and its effect on their engagement, and will offer students the opportunity to suggest some recommendation for intervention in future implementations. The focus group will take approximately 60 minutes to be completed. The time and place will be decided together. The scheduled time will be chosen approximately two-thirds of the way through the semester to allow participants enough time to experience the model of flipped classroom from the trained faculty. The focus group interview will be digitally recorded.

Risks:
This project is voluntary and is a qualitative research study designed to collect data for evaluation of the flipped classroom implementation by trained faculty members to increase students’ engagement. This project presents minimal risk to participants. No
identifying information will be collected about the students such as address, telephone or cellphone number. The emails for the participants will not be disclosed in any part of the study to protect privacy rights as much as possible. Due to the fact that the study is voluntary, participants can choose to share or skip any question in the interview they are uncomfortable answering. Answering the questions should not negatively affect the participants. However, if any participants face any discomfort, they will be encouraged to discuss their concerns with this researcher.

Participants will benefit from participation in this study because they will be able to provide honest feedback about their flipped classroom implementation experiences and perceptions. Such feedback will help to improve and possibly expand the quality of learning in higher education for future professors as well as their students.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Participant’s Signature

Date

Researcher’s Signature

Date