ABSTRACT

CAUDILL, NISHELLE VANESSA. Pre-Service Teachers' Perceptions of a Flipped Classroom: A Study of Undergraduates Enrolled in an Applied Child Development Course. (Under the direction of Dr. Michael Maher and Dr. Heather Davis).

The purpose of this study was to analyze pre-service teachers' perceptions of a flipped classroom and interpret whether these perceptions had a positive or negative effect on their disposition toward using the flipped classroom model in their future classrooms. Qualitative interviews were conducted during the fall of 2013 with three undergraduate students enrolled in a flipped EDP 370—Applied Child Development. Three interviews were conducted over the course of one semester; interviews were audio-recorded, transcribed, coded, and analyzed for themes. The results of the findings suggest that students' approach and commitment to the course influence their perceptions as to the effectiveness of the flipped classroom. Two participants stated that they would consider flipping their future classroom, while the third had the opposite response. The study provides an outline of concerns had by the participants in regards to the structure of the flipped classroom they experienced, how they would address those concerns, and an exposition on the advantages and disadvantages of the flipped classroom perceived by the participants. At the conclusion of the study, the findings are discussed in terms of the larger setting of what pre-service teachers need in order to have positive dispositions toward the flipped classroom model.

Pre-Service Teachers' Perceptions of a Flipped Classroom: A Study of Undergraduates Enrolled in an Applied Child Development Course

by
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DEDICATION

To Mrs. Fox, my Kindergarten teacher who always pushed me to work my hardest and sparked my love of teaching.

BIOGRAPHY

Nishelle Vanessa Caudill is a first generation college graduate who received her Bachelor's of Science Degree in Elementary Education from Western Carolina University located in Cullowhee, North Carolina. After teaching Elementary School for two years, Ms. Caudill was provided an opportunity to teach middle school mathematics. After updating her license to Middle Grades Mathematics 6-9, Ms. Caudill taught in the middle school setting for three more years. After completing her fifth year in the classroom, she moved to Raleigh, North Carolina to pursue her Masters of Science Degree at the North Carolina State University in the Curriculum Development and Supervision Program. After the completion of her degree, Ms. Caudill will return to the classroom before pursuing her Ph.D. in Teacher Education. Ms. Caudill hopes this will lead her to becoming a professor of future teachers.

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CHAPTER 1

INTRODUCTION

Education and educational reform has always been at the forefront of society's radar. Society has often looked to education as a means to fix problems or mold future solutions (Katz, 2001; Kliebard, 2004). During the Industrial Era, schooling was reformed to model factories and promote efficiency. However, in the 21st century the functionality of a traditional classroom has come under scrutiny. O'Malley (1999) describes the traditional classroom setting as one with "a professor giving a lecture and students listening and writing notes." While this definition was specifically for higher education, it can easily be used for any K-12 setting. Additionally, Reiman and Peace (2004) describe a traditional style of teaching as one that "ignores the interpersonal nature of learning" (p. 137). Instead, focusing on a set of "cold and sterile" (p. 137) facts that are of no meaningful importance to students; quite literally going in one ear and out the other with no effects on knowledge retention. Reiman and Peace (2004) continue to outline the characteristics of a traditional classroom as they describe what they refer to as the Knowledge Transmission Model. This model is much like the traditional model due to its high structure and emphasis on lecture-based teaching as a way of transmitting knowledge to students. The structure of the Knowledge Transmission Model is lecture, guided practice, and independent practice and is referred to by Reiman and Peace (2004) as the "easiest model to learn." The downside to the traditional classroom model is that it can "lead to student passivity, and can discourage student-to-student interactions."

Major concerns for classroom educators today surround the continuing decrease of instructional time and the continuing increase of class sizes. These concerns occur simultaneously as demands on teachers continue to become more and more arduous. Teachers, in all grade levels, speak of there "not being enough time" in the classroom to implement all of the strong pedagogical strategies available to them. Stakeholders continue to enact reform models that come and go, leaving teachers searching for a model that can address numerous concerns at one time. Teachers are looking for ways to change the dynamic of the classroom in order to adapt to the increasing pressures while also meeting the needs of their students.

1.1 Context

In a traditional classroom setting the outline of the structure normally goes something like this: Students come in and get settled, there is usually a bell-ringer or warm-up activity the students work on while the teacher does some form of logistical paperwork (attendance, checking homework, giving students make-up work, putting make-up work together, etc.). Next, the class goes over the homework with a teacher and if time permits reviews topics that students struggled on or answering questions presented by students. After the homework is reviewed, then the lecture ensues. The lecture usually takes up the majority of the remaining class time, leaving little time for application. If time permits, the teacher will then assign, usually, a form of classwork. This classwork might be checked or it might turn into a very common situation of, "whatever isn't finished is for homework." Then the bell rings, students pack up and they leave to go home and finish their application of the topic. This scenario described above is applicable to most classrooms 3-12 (the grades involved with

high stakes testing), while slight differences occur for your lower elementary grades K-2. In these lower grades, the scenario shifts slightly as teachers do more interactive activities. However, as the push for testing preparedness filters down to the lower grades, it is not uncommon to see Kindergarten students involved in an hour of math instruction.

It is important to note the above scenario is not, generalizable to every single classroom in K-12. Around the country there are reports of teachers engaging in thoughtful pedagogy. However, traditional approaches to teaching are happening (and failing) in our classrooms and at a higher rate than preferred (Kohn, 2008). It should also be noted that the above scenario does not mention the teacher working with individual students or with small groups of students. It does not mention students having their misconceptions addressed while reviewing homework or doing classwork. It does not mention students have a dialogue in the classroom about ideas, conceptions, and misconceptions. It in fact does not say much in regards to the students' individual needs being met. This is because in most traditional classrooms those types of interactions are not taking place. This is not to say that they are not taking place due to teacher error or lack of caring. It is usually the case due to limited time in the classroom to do *all* that needs to be done. In a system centered on high stakes testing, it is often easier to "teach to the middle and catch those you can." How do we address this concern with the setup of the traditional classroom setting? How do teachers increase the amount of interaction between them and their students? How do teachers increase the amount of engagement students have with the content being taught? This thesis will suggest that one avenue to address these questions is the use of the flipped classroom model through the lens of the pre-service teachers' perceptions.

The flipped classroom changes the dynamic of the traditional classroom from a "long tradition of very didactic teaching, which involved disseminating content" to an environment where, under the guidance and facilitation of the teacher, "students are effectively educating each other" (Berrett, 2012). Instead students getting the lecture part of the lesson outside of class by watching short 5-15 minute videos of their teacher doing the lecture or other types of video sources. By watching the lecture videos at home, teachers now have the majority of their class time open for hands-on activities, in-depth discussions, real-world application examples, and other collaborative activities that are often pushed aside for the sake of time. There are some records that indicate teachers were flipping their classroom as early as the 1990's, but most of the innovation and access to video and Internet technologies has occurring the past decade (Johnson, 2013). About thirteen years ago, Maine forged the path to the flipped classroom by being one of the first states to provide their students with a 1:1 computer experience. Within the first year, Maine saw a 54% drop in behavior issues, an 8% increase in attendance, and an overall increased involvement from the community (Holcomb, 2009). In 2009, Salman Khan began the process of recording his 7-14 minute videos and providing free access to them via the Internet, changing the way many students and adults viewed education (Thompson, 2011). With the ongoing popularity of YouTube, Facebook, Vine, Instagram, Twitter, and other video-friendly social media sites, the ability for teachers and students to access knowledge 24/7 is growing by leaps and bounds. For these reasons, and more, there has to be a way for the educational system to keep up with the needs of 21st century students and parents; flipping provides such a way.

1.2 Purpose

The purpose of this research was to explore three pre-service teachers experiences of learning, and learning to teach in a flipped classroom model. In order to do this I collected qualitative data regarding three pre-service teachers perceptions of learning and learning to teach in a flipped classroom. The pre-service teachers were recruited from EDP 370 (Applied Child Development) at North Carolina State University during the fall of 2013. The course was in its second year of fully integrating a 'flipped' pedagogical model. The study began in August of 2013 and data collection ended in January of 2014. Pre-Service Teacher perceptions were gathered through three qualitative interviews at the beginning, middle and end of term. In addition to data from their classroom assignments and activities.

The objective was to understand these pre-service teachers' experiences and perceptions in order to understand how their experiences (as learners) influences their evaluations and motivation to (as future teachers) integrate flipped pedagogy in their future classrooms. A secondary goal of this study was to examine the flipped model in terms of higher education, specifically in teacher education. Leaning on the words of Dr. Bethany Stone (2012), the aim of this study attempts to measure what she called immeasurable:

> …The most exciting aspect of the flipped class cannot be measured. What makes it worth the extra time and effort is the energy it brings to the classroom. Flipping the class gives instructors the opportunity to walk around and listen to student opinions and concerns. In the flipped classroom, the professor no longer stands at the front of the room—he or she is out in the seats, interacting with the students.

1.3 Limitations

Close attention was paid to the methodology of this study, yet there are still some limitations to its generalizability. To begin with, the study was done with a very small pool of participants. These participants were also all female, two were seniors, one a sophomore, and only one came from a diverse ethnic background. While women fill the majority of the education workforce, the diversity of ethnic backgrounds is in no way represented in this study. Second, the study was only conducted over the course of one semester and included participants from only one particular class, EDP 370. While participants were chosen randomly, there is a level of convenience in this sample. Thirdly, the participants in this study attended a university that is highly integrated with technology. Therefore, the experience the pre-service teachers had with a flipped classroom is vastly different than an experience in a school that does not have access to technology. Finally, while they were assured that the instructor of the course would never know their identity or who was even taking part in the study during the semester, this may have influenced the pre-service teachers to feel pressured to answer questions in a specific way. While this did not seem to be the case, there is always a chance that this occurred.

1.4 Personal Background

Research for this study began in fall 2013 and concluded in spring 2014. The seeds for this research were planted in the fall of 2012 during an interview for an 8th grade math position. While sitting with two teachers I was asked what I thought about the flipped classroom, my response was, “I don’t know what exactly that is but I am willing to learn more about it.” That one conversation forged the path to the research described in this study.

After accepting the position, I did an Internet search into the flipped classroom and found that there were aspects that I liked and disliked. I knew there was a teacher at my new school who had flipped her 6th grade math class and she told me about a training that was being held at the Friday Institute on North Carolina State University's Centennial Campus. I immediately signed up for the three weekend long training. During this training I was provided with the basics of flipping the classroom and then given ample time to create my lecture videos, which were then uploaded to YouTube for me by those hosting the training. This allowed me to focus on just making the videos without splitting my attention with the technical aspects of uploading the videos and Internet speed. Each time before the next training session we were asked to complete "homework" assignments. These assignments asked us to practice uploading videos to YouTube, creating playlists on YouTube, preparing 10 lessons on a template to save time while in the training, and other various technical tasks.

At the end of the training I had my next unit planned and recorded. Hence, when I started the next unit I also introduced my students and parents to the flipped model. I scaffolded the process for my students, watching the first two videos in class and modeling how to take notes, how to rewind, pause, fast-forward, etc. I also prepared a "Why Flip?" video for the parents and students to watch prior to beginning the process and had them sign an agreement form stating they knew what the flipped model was and agreed to allow their students to participate. During this whole process I had the support of the administration who wanted more classes to follow the flipped model.

The process was slow and took time in the beginning but once the students got used to the new learning environment they adjusted quickly. The particular school I taught in was

a charter school in a large county in North Carolina. Of the 97 students in my 8th grade math classes all but two of them had access to Internet at home. Those students who did not have access watched videos during homeroom, during class after they finished assignments, and/or on DVD's that were burned for them.

At the beginning of the study I had taken time off of teaching and was attending graduate school, full time, at North Carolina State University. I chose to do research regarding the flipped classroom because I, personally, found it to be helpful although there were aspects of it that I wanted to change. I was made aware that Dr. Davis had flipped her EDP 370 (Applied Child Development) class and realized it provided a convenient avenue to research and analyze pre-service teachers' perceptions regarding the flipped model. At the beginning of the research I was acutely aware of my biases in favor of the flipped classroom and strove diligently to make sure this bias did not present itself in my questions, my interviews, or in any correspondence with participants. I realized that my experience with the flipped process provided me with the a foundation to work from, in other words it allowed me to glean from my experiences when creating interview questions, when reading articles, when finding commonalities and differences between studies, etc.

In short, from my own experience I thought that the flipped classroom was an acceptable strategy for opening up class time to reach more learners and work more closely with individual and small groups of students. Therefore I wanted to understand the perceptions of pre-service teachers as they underwent the flipped model and learn how their experiences influence whether or not they would want to implement a flipped model in their

future classrooms. I also wanted further my understanding of how a flipped model works in not only higher educational settings but in teacher education specifically.

1.5 Organization of Thesis

This thesis is made up of five chapters. The first provides an introduction to the study and the context from which it was built. The second delivers the review of literature in regards to the flipped classroom both in college and K-12 settings. The third chapter conveys the methodology of the study as well as information regarding each of the participants and how they were chosen. The fourth chapter outlines the findings from the study in qualitative terms in regards to the pre-service teachers' perceptions of the flipped classroom. It also outlines how their experiences in the flipped classroom influenced their openness to implement a flipped classroom model in their future classrooms. The fifth and final chapter discusses the conclusions formed from the study as well as any implications it might have for flipping college and K-12 classes. Recommendations for possible future research are also provided at the conclusion of chapter five.

Keywords: Traditional Classroom, Lecture-Based Pedagogy, Flipped Classroom, Inverted Classroom, Hands-on Activities, Active Learning, Teacher Perceptions, Learner Perceptions, Motivation

Definition of Terms:

Traditional Classroom is a teacher-centered classroom where the dissemination of knowledge is transmitted to students through one-way discourse and manner. (Foertsch et al., 2002 & Reiman et al., 2002).

Lecture-Based Pedagogy is the main teaching strategy used in a traditional classroom focusing on the teacher being the source of knowledge that is distributed. (Geist, 2011 & Reiman et al., 2002).

Flipped Classroom is a classroom with "teacher created videos and interactive lessons, instruction that used to occur in class is now accessed at home in advance of class. Class becomes the place to work through problems, advance concepts, and engage in collaborative learning. Most importantly, all aspects of instruction can be rethought to best maximize the scarcest learning resource—time" (Tucker, 2012, p. 82).

Inverted Classroom is another term used for the flipped classroom. Activities that usually take place inside of the classroom now take place outside the classroom and vice versa (Lage, et al. 2000).

Hands-on Activities describe occurrences in the classroom that provide the following: literal hands-on interactions with content (manipulatives, experiments, book walks, etc.), authentic learning experiences, inquiry bases problem solving, real-life problem solving, collaborative experiences and the like allowing students to be engaged in meaningful ways (Lage et al., 2000).

Active Learning occurs when students are engaged in meaningful activities that provide relevant transferable learning than in most traditional classroom settings (Dennen, 2004 & Lage et al., 2000)

Teacher Perceptions are those thoughts and opinions had by teachers (Geist, 2011 & Lage et al., 2000)

Learner Perceptions are those thoughts and opinions had by students (Butt, 2014, Johnson, 2013, & Yoon & Sneddon, 2011).

Motivation occurs when students become more engaged in their learning, acquire more autonomy, and realize success as a result of persevering over struggles (Lage et al., 2000).

CHAPTER 2

REVIEW OF LITERATURE

Classrooms have been the stage where efficiency and good pedagogy have battled for attention (Reiman,, Peace, & Thies-Sprinthall, 2002). Teachers, for years, have consistently stated that there is "just not enough time" to implement good teaching strategies while also meeting the myriad of demands placed upon them by various stakeholders. Such problems include, the overuse of lecture-based teaching, insufficient time to apply differentiation strategies, a lack of hands-on experiences for students, and a lack of class time spent working one-on-one with students (Foertsch, 2002 & Yoon & Sneddon, 2011). Consequently, there have been numerous curricular and pedagogical reactions to this battle. Many educational fads are debunked once there has been enough research to shed light on limitations. And, as a result these fads, have done nothing more than confounded the tension between efficient and effective rather than improve it. The most recent pedagogical fad educators, and teacher educators, must grapple with is whether to migrate to a "Flipped Classroom Model" (November & Mull, 2012), despite the limited systematic research on flipped the classroom in K-12, college, and teacher education courses. In the following sections I review the literature on flipped classroom model by first defining a flipped classroom, then examining why educators should use the flipped model by anchoring on the limitations of a traditional classroom and the benefits of the flipped classroom model. I also present literature on the challenges of the flipped classroom model and finally examining flipped model in teacher education. This literature represents the foundation for conducting an in-depth study of three teacher education students' experiences of learning in a flipped classroom.

2.1 What is a Flipped Classroom?

November and Mull (2012) discuss that there is not one true definition of a flipped classroom and the definition used of flipped learning is often simplified to just students watching videos at home and doing homework at school. While there does not seem to be one guiding definition of a flipped classroom, there are a few authors who have attempted to define a flipped classroom model. Wetmore (2013) states, the "flipped—or inverted—classroom shifts only the lecture online and creates more time for student-instructor interaction and active learning in the classroom." Lage et al. (2000) refer to the flipped classroom as *inverted* and define it loosely as, "events that have traditionally taken place *inside* the classroom now take place *outside* the classroom and vice versa." They note inverted models integrate, "the use of learning technologies, particularly multimedia, provide new opportunities for students to learn."

Butts (2014) narrows the definition by stating, "at the heart of the flipped classroom is moving the "delivery" of material outside of formal class time and using formal class time for students to undertake collaborative and interactive activities relevant to that material." Tucker (2012) describes the flipped classroom as one that uses "teacher created videos and interactive lessons, instruction that used to occur in class is now accessed at home in advance of class. Class becomes the place to work through problems, advance concepts, and engage in collaborative learning. Most importantly, all aspects of instruction can be rethought to best maximize the scarcest learning resource—time." Foertsch et al. (2002) defines a flipped classroom model in terms of their particular study, stating " In class lectures were replaced with videotaped lectures and other materials that students viewed on the Internet on their own

schedule, making it possible to use the live class periods for small, team problem-solving sessions facilitated by the professors and a teaching assistant." This rather specific definition argues a critical component of the course is transforming of course lectures into "homework." This then frees up face-to-face class time for "working on problems that were similar to homework assignments," thus the professors " reversed the lecture and homework paradigm of a typical large lecture course." In his master's thesis, Johnson (2013) described a flipped classroom as an "instructional strategy that can provide educators with a way of minimizing the amount of direct-instruction in their teaching practice while maximizing one-to-one interaction." Continuing, Johnson describes further the role of technology in a flipped classroom, "this strategy leverages the technology providing additional supporting instructional material for students that can be accessed online. This frees up classroom time that had previously been used for lecturing." John Bergmann and Aaron Sams, who are both considered pioneers of the flipped method; describe the flipped classroom as a way to move away from a teacher-centered approach to a student-centered approach. They also describe the stereotype placed upon the flipped classroom stating, "when educators hear the terms *flipped classroom* and *flipped learning* typically the first thing they think of is a teacher-created video that students watch at home, as though that were the essential ingredient." Both continue to warn against such a stereotype, "flipped learning is not about how to use videos in your lessons. It's about how to best use your in-class time with students."

2.2 Why Flip?

2.2.1 Limitations of the "Traditional Classroom"

The traditional classroom, as defined in Chapter 1, has many limitations. First the lecture-based pedagogy allows for only the transmission of knowledge and rarely allows for a two-way communicative experience between teacher and student and student to student. Second, the traditional classroom has limited availability of time for educators to differentiate. While whole lessons might have differentiated strategies, the ability to do so on a one-on-one basis is limited in traditional setting. Thirdly, the traditional classroom limits the use of hands-on experiences, which will be defined below. Finally, the last limitation of the traditional classroom is in reference to the amount of one-on-one time between teacher and student. The literature in regards to these limitations is described below to support the use of the flipped classroom model.

Foertsch, Moses, and Strikwerda (2002) disclose that lectures have had a long history of being an ineffective form of teaching, allowing for a passive "one-way flow of information from professor to student." Butt (2014) further shows the ineffectiveness of lecture-based teaching as being a teacher-centered approach futile in meeting the needs of students. Lecture style teaching can only occur during the scheduled class time and takes up the majority of said time, leaving little or no instances for other activities. Therefore the issue with lectures is more of a *timing* issue than the content expressed in the lecture (Foertsch et al., 2002). Butt (2014) provides an array of research from varying disciplines suggesting that while some students do prefer the formal lecture, they learn more by "doing" rather than listening. Johnson (2013) describes the lecture-based classroom as a monologue that is

delivered to a "passive disengaged audience." Geist (2011) proposes that the long-standing model of "teacher-focused, one-way, and one-size-fits-all" teaching no longer compatible with students growing up in the digital age. Additionally, students who do not speak up during lectures often get lost in the mix, thus squandering face-to-face time (Foertsch et al., 2002). Class time would also be better put to use if teachers were able to use that time to watch how students are engaging with specific material, not listening to lectures (Foertsch et al., 2002). According to Foertsch et al. (2002), college classes were flipped because both faculty and students expressed dissatisfaction with aspects of courses. Students felt no connection between the lectures and their homework, which required a lot of application of topics discussed in the lecture. Students also felt they had no support during the application of topics, and teachers stated that they felt the lecture-based method allowed for little to no time to interact with students as they learned the art of application. This lack of interaction didn't allow the teachers to truly recognize if students had understood or mastered a topic. Foertsch et al. (2002) eloquently sums up the issues surrounding lecture-based teaching, "students (aren't) learning the things they really needed to know from their professors, and the professors (aren't) learning anything about their students' way of thinking."

In a flipped classroom, more time is open to working with individual students and meeting their specific needs. Geist (2011) states that the educational system has done an overall poor job of assessing student needs and adapting curriculum delivery to meet those needs. In other words, the capacity to differentiate for students is almost non-existent in a traditional classroom. Johnson (2013) states that technology can liberate the teacher,

allowing him or her to graduate from a teacher-centered pedagogy to an asynchronous student-centered pedagogy that allows students to get a more personalized education.

Another problem facing the traditional classroom is the lack of hands-on experiences had by students of all ages. The term "hands-on" has been worn-out in educational literature. For the purposes of this thesis, "hands-on experiences" will be used to describe occurrences in the classroom that provide the following: literal hands-on interactions with content (manipulatives, experiments, book walks, etc.), authentic learning experiences, inquiry bases problem solving, real-life problem solving, collaborative experiences and the like.

Reiman, Peace, and Thies-Sprinthall (2002) display a learning pyramid in which the smaller portion of the pyramid shows class activities that have the least effectiveness on student learning and retention and the base of the pyramid showing the most. The average retention rate for a lecture-based classroom is 5% in comparison to other hands-on approaches such as demonstration (30%), practice by doing (75%), and teaching each other/immediate use of learning (90%). Hands-on experiences as described above, provide such base-level activities. The flipped classroom further these finding by freeing up the majority of class time in order to implement immediate use of learning which in turn has the highest average rate of retention. Also related to hands-on activities is the use of collaborative learning activities where students interact with each other and content at the same time in a cooperative manner. Reiman et al. (2002) also provide research in regards to the effectiveness of such activities on the learning environment. Engaged academic learning time yields a +. 38 effect size, while collaborative learning activities yield an effect size of +. 76. The flipped classroom provides both of these opportunities inside the classroom, thus

implying that the flipped classroom can provide a positive effect on the learning environment through use of hands-on and collaborative activities. Foertsch et al.'s (2002) study focused on changing the lecture/homework paradigm in a college computer science course (CS 310) in order to give students more hands-on experiences with the types of problems that would be encountered in a professional setting. We are led to believe that this increased amount of hands-on experience could not be met while conducting the course in a traditional manner.

The flipped classroom provides more opportunities for teachers and students to interact on a one-on-one basis. Johnson (2013) articulates that most teachers spend the majority of their time lecturing instead of creating meaningful learning activities within the classroom. Tucker (2012) quotes experienced flipped classroom teachers as stating, " I now have time to work individually with students. I talk to every student in every classroom every day." This increase of one-on-one time with students allows for once struggling students who usually give up on homework, learn how push through challenging problems with the guidance of the teacher in the room. This is vastly different from students struggling at home alone, which often leads to students feeling defeated. The flipped classroom allows for the teachers and students to form what Allan Collins (2006) describes as a cognitive apprentice role. Collins (2006) affirms that cognitive apprenticeship "requires a very small teacher-to-learner ratio" he further states that this is not necessarily realistic in large modern classroom. He continues by stressing apprenticeships are a more effective way of learning. Leaning on the research of Collins (2006), the flipped classroom allows for such a method, proving that apprentice could be a "powerful way to improve schools." Vanessa Dennen (2004) concludes that large class size inhibits the teacher from being able to assess and

network with students on an individual basis. This failure to reach students on a more individual basis, leads to teachers falling back on more efficient means of getting the material across to students. Finally, Foertsch et al. (2002) addresses Dennen's (2004) concerns by stressing the capability to create one-to-one experiences in a flipped classroom by expressing, "Suppose that all of the students in a face-to-face course watched the course lectures outside of the class on their own time schedule. What could be done with the scheduled classroom time that was no longer being taken up by lecturing?"

2.2.2 Benefits to the Flipped Classroom Model

Teachers face the above-mentioned problems on a daily basis, stated below are explanations, nested in research, that demonstrate how flipping the classroom could aid in addressing the above-mentioned limitations. In particular, the flipped classroom aids in improving classroom pedagogy.

Improving Classroom Pedagogy: A main benefit of the flipped classroom is the opportunity for teachers to do "good teaching." With the onslaught of testing requirements, teaching has often been whittled down to just the basic facts or in worst-case scenarios "teaching to the test" (Sleeter & Stillman, 2005). Wetmore (2013) describes the inverted classroom as a way to transform education by "increasing student time spent on what research has proven to be the most effective teaching techniques without sacrificing material coverage or support during the learning process." Foertsch et al. (2002) further this benefit by stating, "face-to-face class time may then be used for more pedagogically powerful interactive exercises."

A vital goal for teachers is creating activities that will aid in making students' thinking visible. "When teachers can really see the thinking of their students, they can provide these students with the support and encouragement they need to be successful" (November & Mull, 2012). Collins (2006) further outlines this struggle by stating, "given the way that most subjects are taught and learned in school, teachers cannot make fine adjustments in students' application of skill and knowledge to problems and tasks, because they can't see the cognitive process that are going on in students' heads." Collins (2006) continues by expressing that in order to make cognitive process visible, "the learning environment has to be changed" so that what is happening on the inside of both student and teachers' heads can be made externally visible. The importance of making cognitive processes visible is further promoted by Foertsch et al. (2002) when discussing professors only truly being able understand if students comprehended material when they are able to "watch students attempt to apply or misapply the principles being taught." The flipped the classroom allows for the teachers and students to make cognitive thinking processes visible due to the application of content taking place inside of the classroom, in particular with the use of peer collaboration whereas before, in a traditional classroom this was not readily possible.

Increasing Peer Collaboration: The flipped classroom model provides opportunities for collaborative learning activities more often than traditional classrooms. Collins (2006) maintains that learning communities—such as those that can be created in a flipped classroom—go against the grain of today's schools, where the pursuit of knowledge is seen to be an individualized journey in which dissemination of knowledge travels from textbook

or teacher to student. He continues with "the culture of schools often discourages sharing of knowledge—by inhibiting students from talking, working on problems or projects together, and sharing or discussing their ideas." As learning becomes more collaborative in nature, students are more readily responsive to becoming active rather than passive in their educational endeavors. Butt (2014) refers to the work of Garfield's 1995 work on how students learn statistics, recalling that the central determinant for improved student performance was their receptivity to taking part in pedagogy that promoted active participation by "doing" instead of listening. Foertsch et al. (2002) listed three ways that working in groups benefited the students. The first being availability to multiple perspectives on how to solve problems while also incorporating ideas from those with expertise in differing fields. Second, students enjoyed being required to explain their problem-solving strategies to their peers because it helped with understanding on both the listener and speakers' parts. Thirdly, they enjoyed working alongside the instructors. Lage, Platt, and Treglia (2000) describes the inverted classroom as one that allows for a large portion of class time to be used for group work and active learning, yet does so in a way that does not sacrifice course coverage. Active learning occurs when students are engaged in meaningful activities, Lage et al. (2000) discusses how the inverted classroom allows for students to work with experiments, group work exercises in order to foster collaboration. Flipped classrooms allows for learning that can "occur through active participation in an authentic setting founded on the belief that this engagement fosters relevant, transferable learning much more than traditional information dissemination methods of learning" (Dennen, 2004). Collins and Halverson (2010) speak of information technologies allowing for more hands-on,

activity-based learning, thus the flipped classroom can provide more opportunities for active learning to take place. Geist (2011) furthered the importance of active participation in classrooms as he expresses the needs of students today: "This generation expects to actively participate in and through their media," hence the flipped classroom continues to show progress toward meeting the needs of students.

Increased student participation in class has also been reported as a reason to flip a classroom. According to Yoon and Sneddon (2011) students that were involved in their study regarding the use of tablet PC's in a mathematics course had increased quality and quantity of participation during the live lecture time-slot. This was due to students having more time in class to connect and engage with lecture material rather than worrying about copying down the right notes. Freedom from in-class note taking, allows students to reveal any confusions they had pertaining to content which provides students with a sense of autonomy.

Increasing Student Perceptions of Autonomy: Another reason to flip a classroom is students increased autonomy. Blumenfeld et al. (2006) reviews how teachers can provide autonomy by "allowing students to make decisions about topics, selection and planning of activities, and artifact development." It could be said that in a traditional classroom, allowing students to make such decisions is not permitted due to the already tightened time constraints. Lage et al. (2000) talks about students being able to choose the learning method or methods that works best for their learning needs. Foertsch et al. (2002) discusses how students are able to watch video lecture at a time that is most conducive to their learning and that best meets their schedule. Students in this study said they enjoyed being able to watch

difficult material at a time of day, morning, evening and anytime in between. This flexibility permitted them to interact with content at a time when they were more attentive and focused. Johnson (2012) notes the availability to view lectures by stating; "students can watch their lesson videos at anytime and anyplace, alone, with a partner, or in a small group." The flipped classroom lets students control when, where, and how they intake the content, thus leading to a stronger sense of autonomy. This control of content also allows students to control the pace to which they consume information. Yoon and Sneddon (2011) surmised, from previous studies, that recorded lectures allowed students to "play back the lecture in their own time" meaning that they could "control the pace of the lecture, which they could not do in a live lecture." Foertsch et al. (2002) gave a list of the benefits listed by students in their study, of which "the ability to learn from lectures at one's own pace" was listed. If students had questions or were confused, they simply manipulated the video to meet their needs. During this same study, they found that 60% of students felt, in comparison to other courses taken previously, that the online aspects of lectures, "gave them more control over the pace and method by which they learned the material." In Johnson's (2012) study, 46% of his students saw self-pacing as an advantage of the flipped classroom.

The above benefits of autonomy and pace allow for a level of differentiation usually not accomplished in a traditional setting. There are students who become bored and need to be given additional resources to explore at home or elsewhere that go deeper into the topics learned in class. These advanced topics would require students to make connections between the classroom and their own lives. The teacher in a flipped classroom, "who is more important than ever" will need to be ready to provide such resources (Foertsch et al., 2002).

Furthermore, the key to a flipped classroom is not just helping those that struggle on a more one-on-one level, but to "motivate students who are bored by honoring the knowledge they have, challeng(ing) them to dig deeper, and not hold back their potential." The flipped classroom also allows students to create their own material that could later be used by their peers (Foertsch et al., 2002). Butt (2014) discusses creating informal extension activities in class so that students who did prepare for class do not feel held back by those who did not prepare. This allows students to keep moving forward while the teacher can address the other issues. Dennen (2004) promotes the use of scaffolding as a way to have learner-centered pedagogy whose success is dependent upon teachers adapting strategies based on learner needs. Scaffolding occurs in flipped classroom daily, as newly freed class time allows for instruction to flex with the ebb and flow of the both struggling and advanced students, which in turn allows for increased opportunities for differentiation.

Increased Opportunities to Differentiate: Differentiation in a flipped classroom also involved working closely with students who struggle with content. November and Mull (2012) define one-on-one time in a flipped classroom as teachers having more time to get to know students who are struggling and giving those students the attention they need. This availability to work more closely with students increases confidence, which leads to an increase in student work ethic. Lage et al. (2000) discuss the benefits of increased interaction in two ways: "the student is able to clear up any confusion immediately, and the instructor is able to monitor performance and comprehension." In Johnson's (2013) Master's Thesis, he demonstrates that while students might still struggle with material, the struggle now takes place in class where the teacher and other peers can provide assistance. Students in Johnson's

class recognize the increased face-to-face interaction as well saying, “I don’t have to sit through long lessons, the teacher has more time for me as an individual student.”

The flipped classroom provides differentiation by providing students with the option to manipulate the content by replaying, rewinding, pausing, or fast-forwarding material (Foertsch, 2002, Johnson, 2013, Yoon, 2011). Yoon and Sneddon (2011) lay out frustrations felt by students as they try to “split their attention between trying to understand the content of the lecture and writing down detailed notes to make sense of later” in their research on use of tablet PC recorded lectures in undergraduate mathematics courses. Researchers suggest that students record live lectures so they can pay attention in class and take notes later or vice versa. This method of recording lectures for later use is a way that students differentiate the lesson themselves. Yoon and Sneddon (2011) also share that the manipulation of content allows students to take ownership of their knowledge and control it in a way that is meaningful to each learner. During a live lecture, the learner is unable to pause the instructor to catch up on note taking, or rewind what the instructor said if an idea was missed. While asking the instructor to repeat an idea is not out of the question, many students, out of fear of social implications, do not. Being able to manipulate material in the privacy of your own home (or wherever a student chooses to watch the lecture videos) is a positive step toward reaching the needs of all learners. Lage et al. (2000) stress the difficulty in meeting all of the students’ needs in one classroom setting, however indicates that the inverted classroom “implements a strategy of teaching that engages a wide spectrum of learners.”

One reason that John Bergmann and Aaron Sams got into the flipping business was due to a number of students being absent from class and needing a way to catch them up.

They started filming lectures and realized that students who were present began watching them as a review and students who missed class said they appreciated the opportunity to see what they missed during their absence (Tucker, 2013 & Yoon & Sneddon, 2011). In a traditional classroom a teacher usually struggles to prepare notes, materials, and find time to catch absent students up on work missed; in the flipped classroom this system is already built-in. Absent students can watch a missed lecture in class or prior to returning to class. The flipped classroom allows the teacher to target students, specifically those who missed class. The benefits of the flipped classroom are further presented through the perceptions of students and teachers.

Teachers' and Students' Positive Perceptions of a Flipped Classroom: As one would imagine, as studies have been done regarding the flipped classroom, the perceptions of teachers and students involved have been noted. Research, although limited, suggests that overall teachers have a positive perception of the flipped classroom. Lage et al. (2000) had such notes, regarding teachers' noticing that students were more motivated in the inverted classroom. The perceived cause of student motivation was due to students taking more ownership of their learning. In the same study, teachers felt that the inverted classroom was more stimulating to teach because everyday seemed to be different and required an active involvement with the students. Teachers stated there was more time for one-on-one interactions with students, yet content was not sacrificed.

Tucker (2012), in his study of John Bergmann and Aaron Sams' classrooms, found that those teachers perceived students asking better questions and thinking more deeply about the content than in a traditional classroom. They also stated they felt they had fostered

stronger relationships with students, stronger student engagement, and higher levels of motivation. Other teachers interviewed by Tucker stated that they not only saw the above benefits for students, but also saw flipping the classroom as a way to "elevate teaching practices and the profession as a whole" (Tucker, 2012). Teachers have to really pay attention to the details of instruction when creating video lectures, more thought goes into the examples used, the visual representations created, the pace of instruction, and the alignment of assessment practices. The videos created by teachers also pose as a tool for teachers to create their own content, share resources, and improve practice. One teacher went so far as to say that if these videos had been around when she first started teaching she, "would have run to [them] every week when planning" (Tucker, 2012).

In Geist's (2011) study involving the use of iPads in a teacher education classroom, the teachers were quoted as saying, "I was worried that using the iPad would take away from the students doing a lot of the work on their own. However, I quickly came to realize that the students benefited more from my instruction when I had the iPad compared to when I didn't use the iPad with them." This quote shows that allowing technology into the classroom, as in the flipped classroom, does more to promote student learning and participation than it would hinder it. Teachers in this study realized that this type of learning required them to conduct the class differently. These differences translated into transforming the learning environment to a student-centered approach with the teacher acting as facilitator. Geist (2011) concludes his study by stating the changing of teachers' attitudes and pedagogical ideas will set the course for how the "net generation sees their world and how they want to learn about it."

While the flipped classroom essentially replaces in-class lectures with active learning activities, Foertsch et al. (2002), states that even veteran flipped teachers "find themselves needing to give the occasional lecture" before an activity can begin. Yet even in these instances, the "lecture" is often short and introductory in purpose. This same study proposes that teachers in the flipped classroom who are implementing problem-based group work find the learning experiences to be richer. Teachers could see a new depth of questions being asked by students who were involved in a flipped classroom (Wetmore, 2013).

Teachers' perceptions of a flipped classroom, in a way, control whether or not the method is going to be successful (Geist, 2011). It is suggested that teachers who are more open to the flipped classroom and the use of technology will have more success than those who doubt or question its usefulness. Thus, the decision to flip a classroom should not be taken lightly. Finally, Butt's (2014) study on the use of lecture time in a flipped classroom concludes with him charging teachers with a task, "I believe that we (teachers) have a duty to students to explore more engaging and interactive ways of presenting courses. The flipped classroom is one such approach that is seeing positive feedback from students."

It is suggested that students, overall, have more positive perceptions regarding the flipped classroom than negative perceptions. This is especially apparent in Butt's (2014) comparison where there was a 50/50 split of student perceptions regarding the benefits of the flipped classroom in the beginning of the course to a 75% of students touting the benefits at the conclusion of the semester. The overall positive perceptions regarding a flipped or inverted classroom can also be found in the studies of Lage et al. (2000) and Johnson (2013). Some of the reasons for this change in perception stems from the heavier emphasis placed on

group work (Butt, 2014; Foertsch et al., 2002; Lage et al., 2000), the integration of more active learning activities (Butt, 2014; Johnson, 2013; Lage et al., 2000), a stronger one-to-one relationship between teacher and student (Butt, 2014; Davis, 2010; Johnson, 2013), a more efficient use of class time (Davis, 2010 & Johnson, 2013), increased motivation and ownership (Lage et al., 2000), and ease of note-taking (Foertsch et al., 2002). Students also liked the convenience of being able to manipulate lecture videos and re-watch whole videos when needed (Johnson, 2013 & Yoon & Sneddon, 2011).

Johnson (2013) found positive student perceptions regarding increased learning, decreased homework, increased engagement, and controlling the pace of their own learning. Geist (2011) wrote about students enjoying the flexibility of access to course materials without having to schedule a specific time to work in a lab or having to be in class

2.3 Challenges of the Flipped Classroom

The first challenge facing the flipped classroom is the amount of time needed for implementation. There is significant more time needed in the beginning stages of implementation in a flipped classroom (i.e. creating videos, creating interactive meaningful activities, creating groupings of students based on needs, etc.), yet this time is drastically reduced as time goes on (Lage et al., 2000, & Foertsch et al., 2002). The flipped classroom's challenges continue as students learn to navigate their new autonomous role.

A second challenge presents itself as the sense of autonomy is heightened, allowing students to have too much control over their learning. This challenge occurs because most students never before have experienced this type of "freedom" (Yoon & Sneddon, 2011). Some students will use it to their advantage and strive while others might flounder without

guided support. As students learn to understand their new role, the heavy emphasis on group work can provide another challenge to both students and teachers.

Thirdly, Blumenfeld et al. (2006) warned against the challenge of diminishing thoughtfulness due to students relying too much on one another during group work. Furthermore, group work can also cause students to be off-task and engage is social conversations (Blumenfeld et al., 2006) rather than focusing solely on the activity at hand, consequently leading to the flipped classroom needing a structured system of accountability.

Another challenge occurs when there is a lack of accountability as part of the flipped process; allowing students to feel as if they do not need contribute as required. Consequently a system of measurable accountability needs to be in place in order to hold students responsible for assignments, group-work, and the new structure of the flipped learning process (Blumenfeld et al., 2006). As accountability systems are put in place, considerations for technological issues should be considered as well.

One of the biggest challenges pertaining to the flipped classroom focuses on the issues regarding technology. Blumenfeld et al. (2006) describes ways in which technology challenges schools in terms of access, maintenance, and technical support. When students are not provided with those three components, they can begin to feel frustrated. In regards to access to technologies, November and Mull (2012) point out that not all students have the same resources at home and therefore more effort will need to be made in terms of equity. Johnson (2013) discusses the differences in students' resources and his approaches to aiding those students, which included allowing students to watch videos in class, burning videos on DVD's and downloading videos onto flash drives. November and Mull state, "it is important

for teachers and school leaders to understand their communities and think creatively about ways to create equitable environments for learning."

Proficiency can also pose another challenge. If the instructor of a flipped classroom is using software that is new to students, then students need to be given time to adapt to this new learning (Blumenfeld, et al., 2006). This concept can also be applied to the flipped classroom itself. Students should be given time to adapt to the new way of learning that flipped classroom provides. The amount of time needed during the initial implementation period could be considered a challenge that takes time away from cognitive engagement. The cost of needing time to help students become proficient could lead to students' possible diminished interest for the subject matter (Blumenfeld et al., 2006). Student perceptions of the flipped process should be taking into consideration as a way to gauge the effectiveness of the model.

Other challenges to the flipped model include those perceived by the students involved in the model. Students in Foertsch et al.'s (2002) study felt as if they did not have enough access to the instructor during class time. This might be due to the instructor spending too much time with certain groups or that the instructor being otherwise involved. The study also discussed the matter of students feeling as if they did not need to take notes because the videos were always at their disposal. While this could also be seen as a positive, from the students' point of view, the instructors might view it the opposite way. Some students felt as if the atmosphere of the classroom was too laid back; some students need more classroom structure thus the flipped classroom might not meet every students' needs. In Johnson's (2013) Master's Thesis study regarding his flipped math class, he quoted

students as saying, " it is an interesting program with great ideas, however I prefer the traditional way of learning." Butt (2014) also found this particular need for a more traditional style of learning or lecture-based style of learning in his study. Johnson's (2013) study also found students who preferred a "standard teaching style" because they felt "like [their] understanding of math [had] declined from what [they] would predict it would be form a normal class." Other students said that, "the flipped classroom is not [their] favorite way of learning, but it was a good experience." In regards to the self-regulation of the class, Johnson's (2013) students responded with, "sometimes it is hard to pace yourself and you fall behind without motivation." Others responded, "kids can become lazy and fall behind," while another said, " giving students access to Internet provides possibility for off-task behavior." Continuing with this same study, 11% of Johnson's students stated that they were "disappointed" that they could not ask questions when watching lecture videos at home immediately; rather they had to wait until they saw the teacher. Those same respondents said that if a video lecture did not explain a topic well enough, it was easy to get frustrated and give up. Foertsch et al. (2002) tells of a number of students who did not feel there was ample time to ask instructors questions during class or not liking that they could not ask the instructor clarifying questions while watching lecture videos. A study done by Davis et al. (2010) warned that without support students would begin to feel frustrated and threatened by new technologies and processes. Six percent of Johnson's (2013) students found that the video lectures were less stimulating than live lectures would have been, with one student stating, "I was copying (notes) without learning." November and Mull (2012) further this

issue of "boring" videos, saying that videos alone will not get students excited about the flipped classroom.

Blumenfeld et al. (2006) state two additional challenges facing the flipped classroom; "support[ing] the learning and sustain[ing] the doing." Therefore the final challenge to the flipped classroom lies in the "danger that the flipped classroom could be seen as another front in a false battle between teachers and technology" (Tucker, 2013).

2.4 Flipping Teacher Education

One of the main challenges teacher educators face in determining how to best present and prepare future teachers for flipping is that there does not seem to be a *single* cohesive definition of a flipped classroom. However, a careful review of the literature reveals there are common elements surfacing from preliminary research. These common elements include students coming to class prepared prior to the face-to-face meeting (Lage et al., 2000), the use of hands-on activities and active learning (Collins& Halverson, 2010; Foertsch, 2002; Lage et al., 2000), having a large portion of time in a class period freed up for due to the subtraction of the lecture (Johnson, 2012; Lage et al., 2000), the need for accountability in regards to making sure the students are doing what is asked of them(Butt, 2014; Foertsch et al., 2002; Lage et al., 2000; November & Mull, 2012), and a higher sense of responsibility due to students taking control over their own learning (Foertsch et al., 2002; Lage et al. 2000). Relying on the work of Dr. Eric Mazure, a more concise list of commonalities is listed in November and Mull's (2012) article and quoted below:

- "Students prepare for class by watching video, listening to podcasts, reading articles, or contemplating questions that access their prior knowledge."

- "After accessing this content, students are asked to reflect upon what they have learned and organize questions and areas of confusion."
- "Students then log in to a Facebook-like social tool, where they poste their questions."
- "The instructor sorts through these questions prior to class, organizes them, and develops class materials and scenarios that address the various areas of confusion. The instructor does not prepare to teach material that the class already understands."
- "In class, the instructor uses a Socratic method of teaching, where questions and problems are posed and students work together to answer the questions or solve the problems. The role of the instructor is to listen to conversations and engage with individuals and groups as needed."

2.4.1 Flipping College and K-12 Settings

Dennen (2004) tells of students not being able to make connections between school-based learning and real-world application. In a traditional K-12 setting, rarely is time to made to connect to students' personal lives. Making these connections occurs as students take part in collaborative projects and problem-based learning activities. The collaborative setting of a flipped classroom has the instructor serving as facilitator instead of lecturer. Large courses are limited with how content is presented, but by viewing the lectures outside of class, instructors are able to promote small team problem solving activities and projects that are centered on real-world issues pertaining to specific disciplines. In Foertsch et al.'s (2002) study it was found that lecture videos increased the amount of in-class contact and

interaction between students and teachers in large courses. As class sizes in K-12 continue to grow, the concerns of large courses are no longer college specific.

Education needs to keep up with the pace of technology. Students currently attending college have never known a time when the cell phone did not exist, and shortly those attending college will never know a time when social media such as Facebook and Twitter did not exist. With this in mind, Geist (2011) points out that colleges and universities need to understand this about their student body so that they can make changes that mimic the "changing educational landscape." Most college and universities maintain computer labs for student use can easily address access concerns in a college setting. While access can be the biggest hindrance to flipping a K-12 classroom, there are a variety of ways for teachers to address this concern, which has been previously discussed.

In Lage et al.'s (2000) study of the inverted classroom, it was shown that there lies an importance in teachers being able to use a variety of teaching styles in order to increase student performance, diversity, and engagement. College might seem to be the optimal time to flip the classroom due to the skills acquired involving self-regulated learning, collaborative teamwork, and creative problem-solving techniques. However, these skills could be acquired more quickly if students were exposed to the flipped classroom prior to college. While not always possible in a traditional lecture-based setting, the flipped setting fosters student development, developments that are required of today's global 21st century economic world.

2.4.2 Flipping Teacher Education and K-12 Classrooms: What Teachers Need to Know

As teachers begin to think about how they would implement a flipped classroom, there are some specific elements to consider, especially in regards to flipping teacher education and K-12 classrooms. Teacher education programs are changing their approaches as new research comes to light regarding the needs of K-12 classrooms. For instance, K-12 schools are realizing they are being left behind in terms of technological advancements. According to Davis, Hartshorne, and Ring (2010) students are often more technology savvy than teachers. While to most, this may not come as a surprise; it is an issue that could be addressed if technology was used in teacher preparation programs. This, however, does not address the matter of in-service teachers' need for support, which is beyond the scope of this study. Collins and Halverson (2010) discuss the implications of schools staying out of technology discussion sharing, "the longer schools stay out, the more that education, traditionally viewed as a public good with equal access for all, will be up for sale to those who can afford access to specialized services." Schools need to be in the forefront of technology and seek ways to adapt and incorporate a more technology-driven learning environment, which can be fostered in a flipped classroom.

According to Davis et al. (2010), a study which focused on first-semester, pre-service teacher education students' understanding of the concept of innovation, including its role in promoting students' learning and development, some pre-service teachers indicated a "discomfort with technology" and "associated with a teaching philosophy that feared innovation." This study also provided statements from pre-service teachers indicating

students felt innovative teachers not only had to "learn" new technologies but also apply them while also displaying appropriate pedagogical methods. In other words students saw the importance of not only "knowing" about technologies, but also felt the pressure of applying technologies effectively. If teacher education courses were flipped, time then could be made in class to address student concerns listed above. Davis et al. (2010) also discussed that without support, students might feel threatened if put in an experience that was heavily integrated with technology, thus leading to a resistance to integration. This is a strong indicator that technology alone is not the answer, support and meaningful interactions with instructors lead to pre-service teachers feeling competent, at least enough to try, in the areas of technology and innovation. The flipped classroom allows for such support and meaningful interaction.

When beginning the implementation process, as mentioned previously, teachers need to realize that the flipped model takes more time on the front end then it does in the at the back end (Butt, 2014; November & Mull, 2012). As far as lecture videos are concerned, if one would like to save time, there are numerous pre-made videos easily accessed via the Internet. However, when the actual teacher of the course prepares videos, there is improved understanding and attentiveness (Yoon & Sneddon, 2011). Videos that are prepared by teachers should be short and to the point, this will help with student retention of content as well as allowing teachers to point out only that which is of most importance (Johnson, 2012; November & Mull, 2012; Tucker, 2012). Lecture videos in a flipped classroom should be supplemented. This supplementation could come in the form of related videos from the Internet, readings, and other resources specific to the subject matter (Foertsch et al., 2002).

Additionally, students should be given a specific focus for when they watch a lecture video; this is also the case for in class activities (November & Mull, 2012). In regards to the video lectures and supplemental materials, teachers should be careful when implementing the flipped classroom approach—there needs to be a balance between the active engagement activities in the class and teacher demonstration and clarification of content (Butt, 2014).

Teachers interested in implementing a flipped classroom model in either college or K-12 settings should be aware of the increased responsibility on the student (Collins & Halverson, 2010; Foertsch et al., 2002). This increase in responsibility can come from a number of sources, the first being that in a flipped classroom students are taking ownership of their own learning (Blumenfeld et al., 2006; Collins & Halverson, 2010; November & Mull, 2012). Second, the learning is becoming more mobile (Collins & Halverson, 2010), meaning that students no longer have to wait to be in a class to learn new material, they can do it while waiting for the bus, sitting at home, at a sibling's soccer game, etc. The teacher is also not standing over students telling them to watch the lecture videos; they must take the initiative to do so. Finally, the flipped classroom provides more opportunities to challenge students (November & Mull, 2012), therefore there is increased responsibility on students to be honest during face-to-face meetings about their understandings of the content so that teachers are able to meet specific needs.

The implementation of a flipped classroom needs to be carefully thought out as well, especially for teachers new to the process. There needs to be a strong introduction given to all stakeholders involved (Butt, 2014). This introduction will be the foundation from which the flipped process stands; therefore teachers need to have a clear implementation plan.

There are major benefits for teachers to be aware of when implementing a flipped classroom. There is opportunity to give students immediate feedback as they practice and apply content (November & Mull, 2012). Students work while the teacher is present in the room, thus adjustments to thinking and processes can be addressed almost instantaneously, instead of the next day (or later) as in the traditional classroom. Since the teacher has more control over the kinds of active learning activities taking place during class time, students are also going to be engaged deeper into the content (Blumenfeld et al., 2006). Student motivation and self-esteem is also heightened because content struggles that occurred, for the most part, at home alone are now minimized. Students now apply the content in the classroom *with* the teacher, thus feeling more success more often and becoming motivated to continue instead of giving up as quickly (Blumenfeld et al., 2006).

Teachers wanting to flip their classrooms need to make sure they realize some challenges they might face. The first challenge includes a need to anticipate learner difficulties during active learning (Blumenfeld et al., 2006), while this might also be needed in a live lecture setting, it is even more important when developing active learning activities for different learners. Teachers are going to see a variety of new questions from students arise as they become more and more comfortable with the flipped classroom, hence teachers need to be prepared for these questions and often be able to "individualize on the fly—quite possibly five, 10, or even 20 times in a class period" (November & Mull, 2012). Another challenge is to make sure to create a classroom environment where students respect each another, respect opinions, and respect processes in solving problems or scenarios presented. The classroom needs to become a community of learners where everyone's opinion is

accepted (Blumenfeld et al., 2006) and where students recognize mistakes as a "natural part of the learning process" (Blumenfeld et al., 2006). Additionally, teachers in a flipped setting need to provide a scaffold of support so students do not become overwhelmed with the complexities or difficulties of activities and content (Blumenfeld et al., 2006). Finally, teachers need to realize there is always going to be room for improvement (Butt, 2014). Whether these improvements take place in lecture videos, learning activities, organization, or students' learning experiences, teachers should be open to making changes when necessary.

2.5 Summary and Purpose Statement

The research provided above displays the narrow literature available pertaining to the flipped or inverted classroom. Research surrounding the flipped classroom illustrates the restrictions of the traditional classroom in terms of the limitations of a lecture-based pedagogy, limited differentiation, limited hands-on experiences, and limited one-on-one time spent between teachers and students. Further research was provided in stating the benefits of the flipped classroom in regards to addressing the above limitations. Challenges of the flipped classroom were discussed in terms of issues regarding access, time needed for implementation, and negative students perspectives. Finally, an outline of research was presented in reference to flipping in Teacher Education, including common elements, flipping in college versus flipped K-12 classrooms, what teachers who are interested in flipping need to know, and perceptions of students and teachers in favor of the flipped process.

The purpose of this study was to explore three pre-service teachers' perceptions in order to recognize what they saw as positives and negatives of their experiences in a flipped

classroom, to understand how their experiences influenced their perceptions of the flipped classroom, and if those perceptions promoted or hindered their willingness to flip their future classrooms. Students were enrolled in a 16 week course designed to provide opportunities for: learning using a flipped pedagogy, evaluate flipped methods, and develop some of the technological skills needed to develop flipped lessons for their own students. Another goal of this study was to examine the flipped model in terms of higher education, specifically in teacher education. The following chapter will attempt to explain the methodology for this particular study as the researcher attempts to analyze and understand the perceptions of those pre-service teachers who were interviewed.

CHAPTER 3

METHODOLOGY

This study's purpose was to analyze pre-service teachers' perceptions in order to recognize what they saw as positives and negatives of their experiences in a flipped classroom, to understand how their experiences influenced their perceptions of the flipped classroom, and if those perceptions promoted or hindered their willingness to flip their future classrooms. Another goal of this study was to examine the flipped model in terms of higher education, specifically in teacher education. The focus of the study surrounded the following questions:

1 What are the pre-service teachers' definitions of a flipped classroom at the beginning and end of the semester?

2 How do these definitions differ?

3 What are the pre-service teachers' perceptions of a flipped classroom?

4 What are the elements of the flipped classroom that promote their desire to implement the flipped model in the future?

5 What are the elements of the flipped classroom that hinder their desire to implement the flipped model in the future?

6 What are the pre-service teachers' perceptions of the roles and responsibilities of teacher

3.1 Participants

All students enrolled in EDP 370 (Educational Psychology) had an equal opportunity for recruitment and no student was excluded from the sampling process. The

ages of the students in the course, as a whole, ranged from 18-22, though the majority of students were, at the time of the study, current sophomores attending North Carolina State University. Three participants enrolled in the Fall 2013 course were to be recruited. The three participants chosen were to demonstrate a low, a moderate, and a high range of prior knowledg or experience regarding technology as well as the flipped classroom model.

At the beginning of the term, all students are asked to complete a technology pre-assessment via the online course website, Moodle. The graduate researcher chose the three participants using the second scenario of this pre-assessment (Appendix A). All responses from those enrolled in the course were read and analyzed without names of responders attached. Using the three ranges of prior knowledge of a flipped classroom model, the researcher chose a primary and secondary choice response for each category. Researcher then solicited the first choice respondent in each category, for a total of three, to participate in the thesis research (Appendix B). The main researcher stressed there would be no negative repercussions if those asked chose not to participate in the research. The researcher also made it clear that Dr. Davis (instructor of EDP 370) will have no knowledge of who has been asked to participate or who has agreed to participate, even at the completion of the semester. The researcher's first choice for high and moderate agreed to participate, yet first choice for low was unable to participate due to them dropping the course from their workload. With this in mind, the researcher then contacted the second choice response, with this responder agreeing to participate as well. In the initial email inviting participants to join the study, the researcher included the informed consent form so that the potential participants would know what the research was about and the procedures involved. Those that agreed to particpate

were then contacted again via email to set up a time for the first interview. A brief description of each of the participants is described below.

Table 3.1 Pre-Service Teachers' Background Information and Approach to Class

Name		Approach to Class	Exemplary Quote
Amy	**Major** Art and Design & English with a Concentration in Creative Writing **Rank** Senior **EDP 370 Final Grade** A+ **Cumulative GPA** 3.8	Very Committed: Student did all of the readings, took full use of the iPad, and participated thoroughly during group activities. Amy's interviews also showed tremendous reflective ability and always came prepared with thoughts regarding her experience and perceptions of the class. Amy had perfect attendance in class.	I'm really excited for this process to develop and become stronger. I think there's great potential for it, I enjoyed the opportunity to learn with it and I hope that it doesn't get shot down for its flaws, I think it could keep going and grow into something awesome.
Beth	**Major** Elementary Education **Rank** Sophomore **EDP 370 Final Grade** A+ **Cumulative GPA** 3.9	Slightly Committed: Student admitted to not completing all of the readings because they were so long and having difficulty paying attention during the videos because of their length and lack of entertainment. Beth's interviews showed that she did not enjoy the flipped experience yet by the third interview she could see it's benefit and could imagine using the method by tweaking it to fit her needs. Beth had perfect attendance in class.	It's just; I didn't realize that it was going to be a flipped classroom. So it's a little different, I haven't been in that type of environment before, I'm actually really busy with a lot of other classes, so sometimes the work that I am supposed to do for the class doesn't necessarily come first. It's not a huge priority to me, but if I don't read the 20-page assignment, I'm ok with that. So, it's time consuming, but when we are in the class and are doing the activities, those are really fun and cool and they help a lot, but it would help if I listened to the lectures like I am supposed to do, cause sometimes it's just kind of like background noise when I am trying to listen. It's hard to focus (#1, 12-19).
Carly	**Major** Agriculture Extension Education **Rank** Senior **EDP 370 Final Grade** B **Cumulative GPA** 2.8	Not Committed: Student admitted to not doing all of the readings and not watching any of the instructional video. Carly's interviews showed that she was not in favor of the flipped classroom and could not see past its limitations to its benefits. Carly focused on the increased responsibility placed on the student and the time needed outside of the class. Carly attended 70% of the class and missed the first and last two classes of the semester.	I get behind because I'm like, " this is too much for me to read," for next class, so I don't read it (#1, 116-117).

Carly Wright is a 21 year old Hispanic female who is majoring in Agriculture Extension Education. At the time of the study she was a Senior with a GPA of 2.8 who entered North Carolina State University during the fall of 2010. She is involved in Mi Familia, a Peer Mentor Program, Student Support Services, a Soccer Team, Student Government, and Student Action with Farmworkers. Her future goals include a desire to work with high school students, encouraging them to pursue their careers by providing developmental skills to aid in success in both college and the real world. After working with students for approximately two years, Carly would like to get her master's degree in higher education and pursue working with collge students. Carly was chosen as a participant with a low level of experience or knowledge of technology as well as the flipped model, her final grade in EDP 370 was a B.

Beth Miller is a ninteen year old Caucasian female who is majoring in Elementary Education. At the time of the study she was a second semester sophomore with a GPA of 3.954 who entered North Carolina State University during the fall of 2012. She is involved in three programs sponsored by the University, the first being Students Advocating for Youth (SAY) as an Education Advisor. This role allows her to advise six first and second year students within the SAY Village, plan programs and events both for pleasure and learning, and is available at all times for any students in need. Second, she is a mentor for the Determined Area Youth (DAY) program whre she mentors an at risk 8th grade student in the area. Finally, she is a Caldwell Fellow which has her doing volunteering and exploring outside of the University, this program is the where she calls "home." Her future goals include studying abroad in Mexico, teaching her own class, and traveling around the world

visiting schools to gain a global perspective. She sees life as an adventure and is excited by the prospect of traveling the world. Beth was chosen as a participant with a moderate level of experience or knowledge of technology as well as the flipped model, her final grade in EDP 370 was an A+.

Amy Johnson is a twenty-two year old Caucasian Female who is double majorng in Art and Design as well as English with a concentration in Creative Writing. At the time of the study she was a senior with a GPA of 3.84 who entered North Carolina State University during the second summer semester of 2010. While she is not involved in any clubs on campus she holds two jobs, the first is as a Technician's Assistant at the Materials Lab and the second as a student worker, both at the College of Design. She has also held numerous interships including at the Wildlife Resources Commission Magazine "Wildlife in North Carolina" and currently at "Walter" Magazine. Both internships applied her skills in elements of design, writing, and editing. Her future goals include becoming a narrative journalist, do photography for her own stories, and work as a copy editor for a magazine about North Carolina or the South. She also mentioned in an interview that her reasoning for taking EDP 370 was because she has an interest in teaching and possibly going into the teaching profession upon completion of a Master's Degree. Amy was chosen as a participant with a high level of experience or knowledge of technology as well as the flipped model, her final grade in EDP 370 was an A+.

3.2 Course Background

The EDP 370 (Applied Child Development) reflected a flipped class model due to its heavy integration of technology and the requirement of the students to watch lectures and do

readings outside of class as homework. Students were required to come to class prepared to participate in both group and whole class discussions as well as activities collaborative in nature. This particular EDP 370 course differs from a "traditional" Applied Child Development course due to its heavy integration of technology as well as the inverted paradigm of having students watch lectures outside of the classroom instead of during scheduled class time. EDP 370, in a sense is also considered a hacked classroom not only due to its heavy integration of technology but also the reciprocal teaching that takes between students. The students in this course had access to numerous forms of technology including being assigned iPads for the semester pre-loaded with 100+ applications, a course website (Moodle), an iBook which had the lecture videos and course readings embeded into it, access to the course Dropbox folder as additional avenue to access course materials, and other supplemental materials to be read by students. Therefore the instruction and dissemintation of course understandings took place at home while the application and extension of course topics took place in the classroom under the direct supervision of the instructor, Dr. Heather Davis. The actions of students traditionally done in the classroom is completed at home such as vocabulary, associated theories, using lectures to guide their reading of course text while application and clarification occurs inside the classroom.

Dr. Davis' gradual process of flipping (Foertsch et al., 2002) her Applied Child Development class began approximately ten years ago with creating her first instructional video, which used software to animate the psychological process. Dr. Davis then experimented with students creating their own movies and designing their own websites. Through this process, Dr. Davis arrived at the idea that what would help students understand

child development more thoroughly would be an ability for them to collect and analyze data in the field and then interpret said data during class time with support from the instructor. With this focus in mind, Dr. Davis realized that a lecture-based approach to the class was no longer an option. Dr. Davis discerned that class time needed to focus on providing students with the support needed to interpreting the real data that students collected during their field site visits (Foertsch et al., 2002). At the completion of the course and data collection, Dr. Davis was interviewed to discuss background history of course, rationale of class, explanation of interations, etc. The syllabus to the fall section of EDP 370 is included in appendix E.

There was four formal iterations of Dr. Davis' progression toward flipping her Applied Child Development course. From the beginning, Mr. Nathan Stevens was Dr. Davis' technological guide. Mr. Stevens technological knowledge stems from his position as Assistant Director for the METRC: Media & Education Technology Resource Center at North Carolina State University. The first iteration focused on the students using the iPads in class for class activities and allowed Dr. Davis time to figure out how to supply homework in this new one-to-one (1:1) environment. During this time, only the applications that were used in class were uploaded onto the students' iPads and emails were sent out to alert students of free apps that could be downloaded onto their devices. However, both Dr. Davis and Mr. Stevens realized that at the end of the semester, only the tech-savvy students uploaded the extra applications.

The second iteration of the course saw deviations from the first in the fact that now iPads were used inside and outside of the classroom. The summer prior to the second

iteration saw each iPad being pre-loaded with over one hundred educational applications (30% for pre-school level, 50% for grades K-5, and about 20% for grades 6-10th). Dr. Davis and Mr. Stevens worked with field sites so that students visiting those sites could use the developmental assessments in place for each level. At the nursery level (12mos-4 years of age), there were three assessments, temperament, observational play, and kindergarten readiness. At the K-5 level there were four assessments, self-concept, reading self-regulation, teacher child relationship quality, and college expectations. Finally, at the pre-teen level there were three assessments, teen college expectations, parent/teacher/peer relationships, and self-regulation. The application of these assessments was a critical component of the second iteration. Students took iPads to their field sites and used them to collect data and interpret said data in the classroom. Assessments were created using Google Forms and students used the Google Forms application on their iPads while visiting field sites. The application allowed for an "offline" mode so that access was not an issue

The third iteration saw the inclusion and integration of the course iBook, which is now in its revision and refining stages. Course material, links, and lecture videos are all embedded into this one source for the students to use. In speaking with Dr. Davis regarding these iterations, she stated that there were some challenges to implementing the iBook. Dr. Davis worked diligently over the course of the summer trying to publish the iBook onto iTunes. Negotiations and secondary revisions, based on iTunes regulations, lasted through the summer almost to October of 2013. The iBook was available for students to download through Dropbox yet, depending on Internet connection it could take up to 20-30 minutes. This was a process that many students did not want to do. This third iteration also included

the students managing the class themselves by the usage of reciprocal teaching, providing feedback to each other based on assignments and projects in class, and integrating lecture videos and online materials that were watched and studied at home. The final modification includes, what seems to be a transformation of Dr. Davis' original flipped classroom model into a hacked classroom model, where technology is infused fully into the instruction of the course. In this new form of the class four major developments occurred. The first being that students in the class captured video of each other teaching, which would then be uploaded to the course website so that it could be viewed by everyone in the class. This ability to re-watch that day's particular lesson aided in students reviewing material, clarifying ideas, or catching up if a student was absent since they were actually able to watch what had taken place in class. The second development was that students, themselves, were asked to create an instructional video of their own. During this process groups of students were responsible for making their own slides and provided the voice-overs. The third development integrated publicly available interviews with children for each unit. Students were expected to integrate interviewing skills and content into their field placements and assignments. Interviews that were used were from American Public Media—Dick Gordon's *The Story*. Finally, Dr. Davis created weekly checklists for the students that included what they were responsible for reading, watching, and preparing for the next class. In a sense, the students in Dr. Davis' hacked classroom had taken control of their own learning with Dr. Davis acting as facilitator. As the facilitator of the course, Dr. Davis rarely lectured, did not tell students what to do, and constructed activities for students to do in class. Any lecturing that was done in class, was done in order to provide students with rationale of where they had been in the content and

where they were going. Students had to take it upon themselves to watch the videos and prepare the materials.

As part of the refining process for the course as a whole, Dr. Davis mentioned her next steps being alterations to the lecture videos. Dr. Davis, herself, stated that she did not feel the videos to be "terribly exciting," since they were just voiceovers going through a PowerPoint presentation. The refining process would include Dr. Davis going through the videos and researching different approaches, "there has to be something more interesting and engaging out there that I could do." Dr. Davis also noted her limitations in the area of video lectures, "I am not an animator, so I couldn't do that." yet the video presentation style that Dr. Davis does employ, allows her to focus on her strengths in the classroom such as collaboration, group discussion, and facilitating interactive activities in the classroom, which is evident during class time of her EDP 370 course.

3.3 Procedures

After participants were identified, contacted, and they agreed to participate, the graduate researcher contacted each one individually to set up a time for the first interview. The qualitative research was to include three interviews: a third of the way through the semester, immediately after the semester, and about a month after the semester was finished in order to allow for further reflection. During the first interview, each participant was asked to sign two copies of the informed consent form (Appendix C), along with the graduate researcher; one for the graduate researcher to keep on file and one for the participant to keep for their personal records. Each interview was held at a place of the participants choosing

and lasted approximately thirty minutes with an understanding that the final interview could last up to forty-five minutes.

The interviews were recorded using the researchers laptop computer. Following the interviews, the graduate researcher transcribed the interview, making sure to remove any identifying information and replaced with an assigned name. Only the main researcher had access to the knowledge of which original participant belong to which information. Pseudonyms are used in the final thesis in order to ease differentiation between participants for the reader. Management of data was maintained by the main researcher and monitored by the faculty sponsor. Data was kept either at the researchers house in a locked cabinet when not in use, or at the researcher's office on Centennial Campus, also in a locked drawer when not in use. Any information contained on an electronic device was password protected during the entire study. Access was obtained by the researcher and upon request of the faculty sponsor. The same procedure described above was followed for all three interviews with only the location changing to meet the needs of the participants in addition to allow for clearer recordings of the interviews. Each interview consisted of the researcher describing how the interview would progress and allowing time for questions. The graduate researcher asked questions and participants responded freely. The researcher was able to actively listen since the recording took the pressure of taking notes. Exact questions for each interview are included in Appendix D.

3.4 Analysis

Following the transcription of each of the interviews, the researcher open coded a copy of the transcription. The main researcher coded each sentence for an over-arching

theme. After the open code was completed, three to five main themes were identified for each interview, this was the coding scheme for all participants. Copies were made of the transcript for each theme identified in the open code. Each theme was coded in a unique color, thus the researcher had 5-6 copies of each transcription to analyze. This process was repeated for each interview completed by each of the three participants.

During analysis of the transcripts the researcher created four tables in order to further analyze common themes throughout all three participants' interviews. The first table created was one for each participant. This table include each participants' name, major, class rank, their approach to class, final grade in the course, cumulative Grade Point Average (GPA), and exemplary quote. The second table surrounded themes that dealt with the overall structure of the course. Main themes were coded in the table as well as sub-categories for each main theme that were consistent between all three participants. Examples of main themes in this table include organization, technology, time, role of the teacher, and the role of the student. The third table dealt with tensions and benefits of the flipped classroom experienced by the three participants. Again, main themes were coded with sub-categories for each main theme also coded. Examples of main themes include tensions, responsibilities, and benefits. The final table created exemplifies the participants' initial definition of a flipped classroom at the beginning of the semester and their end of the semester definition. Some sub-category themes identified in individual interviews included technology issues, organizational issues, and concerns about student access.

After coding was completed and tables of themes were created, the researcher began the process of analyzing the overall perceptions created by the pre-service teachers in the

study. When creating a comprehensive draft of the findings, the researcher created a lengthy artifact. The original draft broke the findings into four major themes: structural elements, disadvantages, advantages, and responsibilities of teacher and student each having four to five direct quotes from the participants. This led to a 56 page elaboration. The researcher then began the process of trimming down the chapter, making sure the quotes included represented a balance from each participant. Exemplary quotes for each major theme were chosen for tables, while secondary quotes were discussed in the body of the content. Findings of this study are described below.

CHAPTER 4

FINDINGS AND RESULTS

This study explored pre-service teachers' perceptions of their experience in a flipped classroom. Qualitative interviews were performed (questions for each interview can be found in Appendix D), coded, and analyzed in an order to attempt to gather pre-service teachers' general perceptions of a flipped classroom. Qualitative data allowed for pre-service teachers' to give honest accounts of their experience and more freedom in response than a survey or other quantitative data would provide. The goal of this study was to investigate whether or not the pre-service teachers' involved would consider flipping their own future classrooms based on their experience. The findings for this study are provided in this chapter separated by the major themes brought up by all three participants. There were three main themes that were presented each with a number of sub-themes; Table 4.1 shows the breakdown of themes and sub-themes.

Table 4.1: Outline of Findings

Major Theme:	**Structural Elements**	**Disadvantages**	**Advantages**	**Responsibilities of Teacher and Student**
Section:	**4.1**	**4.2**	**4.3**	**4.4**
Sub-Theme:	Organization of Class	Missing Information	One-to-One and Small Group Instruction	
Sub-Theme:	Technology Used	Student Participation	Increased Focus on Teaching	
Sub-Theme:	Time	Access	Increased Parental Involvement	
Sub-Theme:	Role of Teacher and Student	Technology Issues	Access to Technologies	
Sub-Theme:			Increased Benefits to Students	

4.1 Pre-Service Teachers' Perceptions Pertaining to Structural Elements of a Flipped Classroom

This first main theme refers to the pre-service teachers' perceptions regarding the various structural elements that occurred either specifically in EDP 370 or generally in a flipped classroom model. The sub-themes discussed in this section include: Structure of Organization (organization of EDP 370's class time, organization of a general flipped classroom, organization of assignments, organization of clarity, and discussion of pre-service teachers' proposed changes to the organization of a flipped classroom), Structure of Technology Used (iPad, Moodle, Lecture Videos and Supplementary Videos, iBook, and Dropbox), Structure of Time (time needed outside of the classroom, time needed inside of the classroom, Time needed for the teacher, and Time needed to implement a flipped classroom). Also discussed in this section will be the pre-service teachers' perceptions of the roles teachers and students have in a flipped classroom. Table 4.2 provides an outline of the themes discussed in this section.

4.1.1 Structural Element: Organization

EDP 370 Class Time

The first organizational structure that pre-service teachers' referred to was that of the structure of the class time of the EDP 370 course. The structure of class time was defined as activities completed both in class and out of class. These activities could be readings, videos, group work and presentations, written assignments, and teacher presentations. In each of the interviews, each participant mentioned at least one element about the structure of class time. All three participants discussed the skeleton aspects of the class in general. Amy stated that

she liked “being able to learn outside of the class with the videos, etc. reading the material outside of class and then coming in and talking about it…” and Carly shared that it was “very interesting to see how using learning before we go in and then using the techniques in the classroom really helps understand certain techniques.” Both Amy and Beth suggested that meeting only once a week for three hours seemed to make the course more daunting. The face-to-face time was not often enough for the students to feel as if their questions could be answered. Participants also indicated that the length of the class was a hindrance in regards to staying focused. Two of the three participants recommended changing the class meeting time to twice a week for an hour and a half instead of three hours once a week. Amy stated, “I really think the format of class is interesting; I think it would be great if it wasn't three hours. If we met twice a week for half the time would be great” (Amy, Interview #1, Lines 108-109 of transcription). Beth furthered this point after reading an article about a high school flipped classroom, “high schoolers had an easier time because if they missed something the first day it's not hard for them to, the next day, ask but it's a little difficult for us because we saw her (Dr. Davis) once a week” (Beth, Interview #3, Lines 41-43 of transcription). This was a particularly strong perception for Beth as she mentioned it two other times during our third interview.

Another structural element of class time that pre-service teachers’ discussed was the use of reciprocal teaching. From the interviews, the participants indicated they understood why this teaching strategy was used—to be able to cover more material without requiring every student to read every material—it was not highly regarded. Amy described the structure of the reciprocal teaching for the EDP 370 course briefly: “as far as one article, you

read it carefully and teach it to your group" (Amy, Interview #1, Lines 38-39 of transcription).

Table 4.2 Structural Element: Organization

Sub-Theme	*Operational Definition*	*Exemplary Quote*
EDP 370 Class Time	The element of class time refers to the structure of activities required for and completed both in class and out of class. This could be readings, videos, group work, written assignments, and/or teacher presentations.	We do online lectures, we listen to the lectures before we go into the class, we have a lot of reading that we do outside of the class and we do like application type stuff when we are in the class and different assignments. (Beth, Interview #1, Lines 6-8 of transcript)
General Flipped Classroom Model	This element refers to the flipped classroom structure specifically. This entails the students doing work outside of the class preparing for the upcoming lecture (usually includes readings and video lectures). Then the student come to class having completed all assignments and performs tasks individually, in groups, or whole class that applies what they prepared the week before. Class time is then meant to perform tasks either individually, in groups, or with the whole class in which students apply what they prepared the previously	A flipped classroom is designed to provide most of the verbal lecture form of teaching at home or outside of the classroom, the student is able to access the videos, they are also probably able to access charts, photographs, etc. To explain it they are trying to the best of their ability to get it on their own first. They are able to come back into the classroom with the teacher and do their homework, do the problems, where the teacher can come sit with them one-on-one (Amy, Interview #1, Lines
Assignments	The structure of assignments refers to what is being asked of the student. This includes what readings to do, what videos to watch, what chapters to read, what written reports to prepare, etc.	It's a lot of outside the class work (Beth, Interview #1, Line 8)
Clarity	The element of clarity refers to the instructions or directions provided to the students so that they may perform necessary tasks in and out of the classroom. It also refers to the participants' understandings of what the flipped classroom entailed.	Learning at home was very, very, very disruptive by the disorganization, it really, really was (Amy, Interview #2, Lines 117-118)
Changes to the Flipped Experience as Proposed by pre-service teachers	This structural element refers to how the participants would organize their own flipped classroom. After experiencing a flipped classroom, all three participants stated they would make some modifications.	What I would do is I would try to set up each of my lectures, create a lecture or slides or whatever it was, some kind of presentation for the students to do at home, to go through at home. Then, if I had access to iPads, if they had access to the kinds of applications that we had, I would probably take an application for each week and I would relate that week's coursework to that application, their coursework would have to be done either with or through that application (Amy, Interview #2, Lines 138-145).

She also stated that in talking with other students in the class, the students teaching each other is something that they " didn't find as successful." The reason for these apparent frustrations, as discussed in the interviews, was that some students would not come prepared

to class. When asked to teach each other about an article that was read, if as student or group of students did not complete the reading, they were then unable to present the article to the rest of the students in a sufficient manner. Amy, especially, found this to be a point of frustration in the flipped classroom.

General Flipped Classroom Model

The next sub-theme that was mentioned by the participants was the organization of a generic flipped classroom, not necessarily that of EDP 370. This structure refers to the flipped structure specifically. This entails the students doing work outside of the class preparing for the upcoming lecture (usually includes readings and/or video lectures). Then the students come to class having completed all assignments. Class time is then meant to perform tasks either individually, in groups, or with the whole class in which students apply what they prepared the previously. Therefore this structure takes the lecture out of the class and places it in the home of the student. The participants were asked the same question at the beginning and the end of the course, "What can you tell me about a flipped classroom?" Carly, had little understanding or knowledge of the flipped classroom and her weariness toward the teaching strategy was evident in all three interviews. While Amy and Beth had a pretty clear understanding of the flipped classroom in the beginning, their interviews saw more openness to the idea of the flipped classroom. Another sub-theme brought to light was that of the structure of assignments in the EDP 370 course as well as general musings of assignments required in a generic flipped classroom.

Assignments

The structure of assignments refers to what is being asked of the students. This includes what readings to do, what videos to watch, what chapters to read, what written reports to prepare, etc.

Beth and Carly discussed the amount of work that was required for this particular flipped classroom. While this might be due to the fact that the course only met once a week, it was something that was mentioned numerous times by both participants. Beth was concerned with the amount of work that needed to be done outside of class and the length of articles that needed to be read, "If I don't read the 20-page assignment, I'm ok with that (Beth, Interview #1, Lines 15-16 of transcription). Participants implied they felt stressed when discussing the amount of work that needed to be completed in addition to the number of other courses being taken during the same semester. Amy, stated that the sheet passed out by Dr. Davis at the end of each class which the requirements for the next class was helpful, "I really like the sheets that tell me everything that I need to do, I use it as a checklist" (Amy, Interview #1, Lines 19-20 of transcription). Carly, on the other hand mentioned her need to know everything at the beginning of the semester, "I'm the person in the classes, I want to have the whole schedule when I begin the class, I want to know what chapter I'm supposed to read, when I'm supposed to read them, how I'm supposed to read them (Carly, Interview #1, Lines 122-124 of transcription).

Clarity

In relation to the structure of assignments, the participants also mentioned a need for furthered clarity in the structure of the flipped classroom. Clarity refers to the instructions or

directions provided to the students so they may perform necessary tasks in and out of the classroom as needed to fulfill requirements for the course. It also refers to the participants' understandings of what the flipped classroom entailed. After discussing the various reasons for her frustrations (overwhelmed with amount to do, links hard to find, materials not titled the same way in all the online formats, etc.), Amy proposed providing an "order of operations" or "checklists" that are carefully label[ed] so that it matches up would really help" with frustrations spawned by clarity issues. All three participants indicated that these frustrations were the source of conversations between them and other classmates. Beth's clarity concerns arose during the first interview as she discussed her confusion with the fact that "there was work that we had to do before we got in the classroom." This bewilderment continued for Beth as she states she was "lost the whole time," further implying that she didn't feel as if she learned as much as she could have in a traditional classroom. Carly's trepidation came from her not understanding what class resources to use, declaring, "I don't know if she wants us to use the iBook or the book that was requested for the class." Carly states that this concern caused her to often read more than she needed to which led to her feeling overwhelmed and ultimately giving up on the reading assignments. Carly sums up the feelings of all three participants during the final interview, in reference to clarity: "I myself didn't know what we were doing."

Changes to the Flipped Experience as Proposed by Pre-Service Teachers

This final section of structural elements refers to how the participants would organize their own flipped classrooms. During the interviews all three participants gave ideas and suggestions for things they would change if they were to implement a flipped classroom in

the future. Amy's suggestions centered around creating top-notch videos and trying innovating things each week, Beth's suggestions centered around creating one or two videos for a week and providing more opportunities for students to watch them in the classroom, Carly's suggestions centered around stressing the importance of watching the videos to the students and incentivizing watching the videos.

4.1.2 Structural Element: Technology Used in the Course

EDP 370, as explained previously was heavily infused with technology. Students in the course were given an iPad at the beginning of the semester pre-loaded with hundreds of educational applications. Students were free to customize the iPad based on their own needs; this included adding and removing applications, grouping applications into folders, and any other manipulation they wanted to do in order add, subtract, or tailor the device to their needs. The students also had access to a class Moodle website. Moodle is an open source website used by North Carolina State University to support internet-based courses. While EDP 370 is not an online course, all class resources were uploaded to this website and students could access it wherever needed and view, upload, download, and print class assignments and other materials. The class also had access to the course Dropbox file. Dropbox is file hosting service operated by Dropbox, Inc., that provides cloud storage that can be accessed anywhere by logging onto the website.

Table 4.3 Structural Element: Technology Used in the Course		
Sub-Theme	*Operational Definition*	*Exemplary Quote*
iPad	The class was outfitted with Generation One iPads that were checked out to each student. The iPads were fitted with hundreds of educational applications that students could use at the field sites. Students were encouraged to customize the devices to their own liking, annotate notes, and utilize all functions of the iPad.	I think the use of the iPads is interesting to see. I'm not saying that it's all negative to use iPads, I think to a certain extent using the technology to learn is amazing and for students even with youth sometimes it's nice to give them that option to learn because they are going to need that sometime in the future, to learn how to use PowerPoint, to learn how to use apps (Carly, Interview #1, Lines 132-136).
Moodle	Moodle is an online class website accessible to all enrolled North Carolina State University students. Class resources uploaded to this website included videos, website resources, readings, assignment descriptions and grades. Students to upload their assignments and conduct classroom forums also use this site.	And then like her Internet page everything was thrown on their, and this guy (referring to an article read) talked about how you should limit your links and stuff on a page (Beth, Interview #3, Lines 92-94).
Videos	Videos that the students were to watch included both videos created by the instructor and those from other sources pooled by the instructor.	So, I thought that was actually really good that the teachers are trying to keep it (lecture video) down to a minimum of ten minutes and saying the most important things (Amy, Interview #3, Lines11-13).
Dropbox	Dropbox is an online "cloud" storage space where students were able to download resources from the class as well as upload assignments during class for ease of sharing with others. This site works like an online version of a flash drive; files can also be accessed via students' iPads while "offline" for ease of communication.	The thing I found most confusing is the clarity…between the iBook, the sheets she sends home, the Dropbox, and every video has a different title (Amy, Interview #1, Lines 20-23) **Note:** Participants did not mention the use of Dropbox other than in terms of clarity, which is discussed in section 4.1.
iBook	The iBook was created by the course instructor and was designed to be a "one-stop shop" for the course where students could read needed materials, download readings, and watch videos that had been embedded. There were technical issues throughout the semester with the iBook and thus the above-mentioned tools were of great use.	I know the iBook never worked liked she (Dr. Davis) wanted it to and I know she was really upset about that and I know the idea was that the iBook was going to lead us through all of the lectures and all of the videos (Amy, Interview #2, Lines 89-91).

There is also a Dropbox application for the iPads that allows users to access files while in an "offline" mode in the case that there is no Internet access. The students in EDP 370 were also provided with an iBook for the course. An iBook is an e-book application operated by Apple Inc., and created by the instructor using the iBooks Author application. While limitations with the iBook were already discussed in Chapter 2, the iBook provided course materials in one location after being downloaded via the Dropbox website. Imbedded or uploaded to the Moodle site, iPad,
iBook, and Dropbox were the required videos that needed to be viewed as part of the course. The above technology was all part of the learning process for the flipped classroom. Table 4.4 outlines the technological features of the course. A discussion of the pre-service teachers' perceptions of these technologies follows.

In reference to the use of iPads, the participants had varying perceptions. Amy was hesitant in the beginning of the semester due to this being her first experience with an iPad, yet as the semester progressed so did her ease with which she used the device. Beth did not seem to sway for or against the use of the iPads either in the class or the field sites. Carly understood the need for technology, such as iPads, in the classroom but imagined them being more of a distraction. Thus, Carly stated, "I think that allowing them to use it (iPad/technology) in the class is amazing, but to a certain extent." Carly implies she would limit the use and access of such devices in her future classroom. The pre-service teachers' realized the importance of integrating technology for their future students. They recognized technology would help prepare students for the real world and for future endeavors. Yet, while understanding technology's importance, it was also seen as a possible distraction for

students. With this in mind, the pre-service teachers' also thought the use of technology was a good thing but some would only use it in their classrooms to a certain extent. Carly, in particular suggested she would not want the technology to take control over the learning process.

The Moodle website was discussed by all participants. Amy, Beth, and Carly discussed the open source website in terms of clarity, referring to the difficulty of finding needed links. Beth clearly states this as she correlates her experience with an article she read for the third interview (See exemplary quote in table 4.4). All participants implied that the difficulty of navigating the Moodle page was a source of frustration and anxiety.

The pre-service teachers' had the most to say in regards to the lecture videos. The course specific lecture videos (voiced-over PowerPoint presentations) provided the strongest perceptions from the pre-service teachers. To begin with, Beth shared her difficulty with staying focused while watching the course lecture videos: "the online lectures, which is where we are supposed to get all of our course notes from and I just can't pay attention to them. I try, I tried really hard for a couple of weeks and now I'm just like, I can't do this. So, I've kinda given up a little on the lectures." Beth implies that her own struggle to pay attention to the course lecture videos led her to stop watching them altogether. Amy, Beth, and Carly suggested that being able to see the instructor in the lecture video helps with maintaining focus and attention as well as helping build teacher/student relationships due to the students being able to "see" the teacher on a more regular basis.

Amy and Beth acknowledged that not all teachers are good on video, consequently this leads to lecture videos being "boring." Amy suggested teachers get students involved in

the video process, getting their feedback about what worked and did not work. This process, according to Amy, would allow for teachers to understand what students were grasping from the videos and what needed to be changed to allow them to further grasp the videos' purpose. One interesting perspective taken by the pre-service teachers' was that of the importance placed on the entertainment value of the lecture videos. Beth proposed including "entertaining" features such as songs, rhymes, visuals, etc. to help keep students engaged while watching the videos. All participants shared that they thought there could be a more entertaining way to create the video lectures.

Both Amy and Beth shared their concern surrounding the length of lecture videos. The pre-service teachers' also supported the idea of short, concise lecture videos that get straight to the point. The videos for the course were up to an hour in length, Amy advocated for short 5-10 minute videos that required teachers to be succinct when delivering content. Beth even brought up the issue of students having too much screen time; she suggested that a shortened lecture video would help with this.

With regards to the Dropbox and iBook, the pre-service teachers' shared their frustrations surrounding these two issues. These frustrations stemmed from the difficult navigation of the Moodle page and the issues in not being able to use the iBook as originally planned. Other than what was shared in section 4.2 regarding clarity, no new perspectives were shared.

4.1.3 Structural Elements: Time

Another sub-theme regarding the structural element regarding the flipped classroom brought up by participants was that of time. This structural element refers to the amount of

time needed in a flipped classroom. This sections outlines four sub-themes which include time needed outside of the class for students, time needed inside the class, time needed for the teacher to prepare, and finally, the amount of time needed for implementation. Table 4.5 further clarifies the structure of this section. The pre-service teachers' mentioned time in all three interviews, implying that the structural element of time was at the forefront of their perspective taking.

Table 4.4 Structural Element: Time

Sub-Theme	*Operational Definition*	*Exemplary Quote*
Outside Class	This time refers to the amount it takes students outside of the class to complete the necessary requirements. For example, readings, watching lecture videos, writing reports, preparing their own videos, etc.	I spent more time looking for things and trying to figure out what I was supposed to do than I ever spent studying or learning at home and I hate to say that but it's really true (Amy, Interview #2, Lines 108-110).
Inside Class	This time refers to the amount taken inside of the classroom to both use technology and deal with its shortcomings.	I think we spend a lot of time and the kind of frustration of how do you get information, because everyone is using all these different apps, how do you get it to somebody? (Amy, Interview #1, Lines 101-102)
Teacher	This time refers to the amount of time it takes the teacher to prepare for a flipped classroom. For example, recording of videos, uploading videos to a server, preparing handouts, preparing for group activities, gathering readings, designing webpage, designing written assignment, collecting materials, etc.	I know I hear Dr. D say a lot that she was always trying out new apps and always figuring out, "Ooo, this would be cool for the kids to work with" (Amy, Interview #2, Lines 158-160).
Implementation	This time refers to the amount needed to implement a flipped model. This could be all at once (quickly) or a gradual/scaffold process where implementation is done in stages or chunks.	They (teachers in an article) talked about how they just started off and they kind of flowed into it rather than jump right into it (Beth, Interview #3, Lines 82-83).

The perspectives from the pre-service teachers' showed a variety of conceptions regarding the time needed for and taken in a flipped classroom. One of the pre-service teachers' perceptions that should be brought to light is the amount of time they professed to be needed outside of class. This included time to do assignments (in a negative connotation), time to do assignments (in a positive connotation), enjoying learning outside of the class, the time needed to listen to long lectures, and concerns about their future students not having time to do what they were being asked to do. The pre-service teachers also shared their frustrations with time. The frustrations felt by the pre-service teachers' involving time revolved around how long it took to locate assignments, how long it took to complete assignments, the amount of outside-of-the classroom work that was required, and various technology issues that occurred both in and out of the classroom. Two of the pre-service teachers' felt the workload was too much at times, especially when trying to balance other courses and Beth and Carly suggested that the frustration felt led to a feeling of apathy toward coursework.

The pre-service teachers' also recognized the time needed for teachers to prepare a flipped classroom as well as the time needed to implement one. All three participants stated that they would slowly implement the flipped structure as a way to scaffold the strategy into the norm of the classroom. This was interesting considering their experience with the flipped classroom was not gradual.

4.1.4 Pre-Service Teachers' Perspectives on the Role of both Teacher and Student in a Flipped Classroom

The role of the teacher refers to the various necessities of a teacher in a flipped classroom. This includes behind the scenes activity such as preparing videos and creating assignments. As well as class activities such as, facilitating group work and providing support for those who need extra help. It also refers to the ability of the teacher to assess their students' needs and adjust instruction accordingly.

The role of the student refers to the various needs of the students placed on them by the flipped classroom. This includes preparing for classes by doing the readings, watching the video lectures, and writing any necessary reports. Another important role of the student in EDP 370 was going to the field site assigned to them and applying the topics and strategies discussed in class. The role of the student also extends to the classroom itself, where they were expected to participate in collaborative activities, present material to the class as a whole and provide feedback to others when necessary. The pre-service teachers' perspectives regarding these two roles are further outlined in Table 4.6.

Table 4.5 Pre-Service Teachers' Perspectives on the Role of both Teacher and Student in a Flipped Classroom		
Sub-Theme	*Operational Definition*	*Exemplary Quote*
Teacher Role	The role of the teacher refers to the various necessities of a teacher in a flipped classroom. This includes behind the scenes activity such as preparing videos and creating assignments. As well as class activities such as, facilitating group work and providing support for those who need extra help. It also refers to the ability of the teacher to assess their students' needs and adjust instruction accordingly	I would expect the teacher to set things up in a way that made it easy for us to find stuff. It's just that if she wants us to read three things, I would want the link to be "Day one, here are your three things to read," not you need to go to the Dropbox to see one of them, go to the iBook to get another one and then find the other one just hanging out on Moodle somewhere, definitely expect my teacher to have her stuff together, his stuff together (Beth, Interview #3, Lines 251-256).
Student Role	The role of the student refers to the various needs of the students placed on them by the flipped classroom. This includes preparing for classes by doing the readings, watching the video lectures, and writing any necessary reports. The role of the student also extends to the classroom itself, where they were expected to participate in collaborative activities, present material to the class as a whole and provide feedback to others when necessary	I think it does encourage students to be responsible for their own learning (Amy, Interview #3, Lines 202-203).

Role of the Teacher

Based on the perspectives of the pre-service teachers', major themes arose regarding the roles of teachers and students in the flipped classroom. First, concerning the teachers' role, the pre-service teachers' realized the need for a flipped classroom teacher to have materials not only prepared, but also prepared well. Amy emphasized that teachers who are getting ready to start the flipped classroom should develop their procedures and process well before implementation. Teachers, as the participants suggested, should collaborate not only

with other teachers and professionals but also with students when creating materials and videos in order to make sure they get their point across. Teachers are also responsible for preparing, when needed, extra handouts or materials to help clarify topics. Pre-service teachers' also perceive the role of the teacher to involve discovering new technologies and materials that are more up-to-date for the class and subject matter. The teacher's ability to be organized was also mentioned by the participants several times during the interviews. Beth suggested that having materials and resources laid out so that it is "easier to find things" would be an important role for the teacher of a flipped classroom

An interesting perspective that all three pre-service teachers' mentioned numerous times was that of the role the teacher played in the success or failure of the flipped classroom in regards to how in-depth (or not) the process was introduced. The pre-service teachers' perceived the introduction to the flipped model to be a critical point in implementation. Amy, Beth, and Carly all implied that if the introduction to their flipped classroom experience had been more in-depth and slower they wouldn't have struggled as much as they did, especially in the beginning.

Another perception that was mentioned numerous times were the roles the teacher played in providing and monitoring the needs of students. This often took the shape of one-on-one interaction between both student and teacher. This particular role of the teacher seemed to be the most crucial perspective of the pre-service teachers'. Amy, in particular, touted how the ability for teachers to work with students more closely was what "sealed" the benefits of the flipped classroom, for her. She continuously spoke about the importance of

working one-on-one with students and having time in the class to "actually teach" and understand where student misconceptions lie.

Role of the Student

The pre-service teachers' provided themes for the role the students play in a flipped classroom. The main perspective was that of the student being a self-regulated, self-assessing responsible party. This took the form of students completing assignments and taking notes (or deciding they do not need to take notes). It also took the form of students knowing when they needed more clarification and creating questions for the instructor or realizing a need to re-watch or review course materials. Carly mentioned the high level of commitment needed on the students' part in a flipped classroom in order to be a self-directed learner. While Amy and Beth were more willing to have students take on more responsibility for their learning, Carly was more apprehensive, stating that students have enough responsibility in school.

Overall, the interviews with the pre-service teachers' have provided a number of themes in regards to the structural elements of a flipped classroom. These pre-service teachers' perceptions suggest that they can see the possible benefits of implementing the flipped classroom if their concerns are addressed. The pre-service teachers' can both articulate what they like and dislike about the flipped model and apply it to their own learning and the learning of their future students.

4.2 Themes Concerning Perceived Disadvantages of the Flipped Classroom

As mentioned in Chapter 3 there are both disadvantages and advantages to the flipped classroom model. This section will focus on the disadvantages perceived by the pre-service

teachers. There were four overall themes presented by the participants: the feeling of missing information, the perceptions of classmate participation in the EDP 370 course, concerns regarding access to class resources, and technological issues that arose either in or out of the classroom. While table 4.7 outlines each theme, they will also be discussed in depth.

4.2.1 Perceived Disadvantage: Missing Information

Missing information refers to the pre-service teachers feeling as if they were unable to understand all of the concepts due to some of the classroom structures of students teaching each other. Missing information also refers to the students feeling as if they missed some instruction or clarification due to the structure of the flipped classroom. Several times during the interviews all three participants stated they felt they missed some information or did not feel they learned as much as they could have in this type of learning environment.

The pre-service teachers' perceptions regarding missing information have clear similarities to them. The reciprocal teaching made some of them feel as if they were getting a portion of the information. Furthermore, the participants implied that organizational issues also made them have this "partial information" perception. The disadvantage to the flipped classroom, in this case, was the perception of missing information regarding assignments and material presented in class and/or missing information regarding what the flipped process was all about. Beth and Carly shared they felt "lost" for the majority of the semester as they tried to navigate this new way of learning. The pre-service teachers suggested a need for a clearer introduction to the flipped classroom and a clear direction as to the requirements for assignments. The pre-service teachers' suggest that they felt as if they walked away from

course not gaining all that could have been learned. This perception relates to the next theme acknowledged by participants in regards to their perceptions of classmate participation.

Table 4.6 Themes Concerning Perceived Disadvantages of the Flipped Classroom

Sub-Theme	*Operational Definition*	*Exemplary Quote*
Missing Information	Missing information refers to the pre-service teachers feeling as if they were unable to understand all of the concepts due to some of the classroom structures of students teaching each other. Missing information also refers to the students feeling as if they missed some instruction or clarification due to the structure of the flipped classroom	Otherwise I feel like I'm just missing, I feel like I'm getting a sixth of the information, I know what my article said but other than that I'm not really sure, so that's been a challenge (Amy, Interview #1, Lines 48-50).
EDP 370 Classmate Participation	Classmate Participation refers to how students in this flipped classroom participated during class, group work, and presentations. Also, classmate participation refers to how well students prepared in order to take part in the class activities.	So I don't know how to get that much material presented to students in one class but I do think that the group project presentation didn't work as well (Amy, Interview #2, Lines 38-40).
Access	Access to resources refers to the pre-service teachers' perceptions of their future students' ability to interact with online materials such as lecture videos, materials, assignments, apps, iPads, or any type of technology. Access also refers to the pre-service teachers' perceptions of the types of access needed by the teacher in order to perform a successful flipped classroom.	Some students don't have access to computers or technology at home, which is one of my biggest concerns (Beth, Interview #3, Lines 11-13).
Technological Issues	Technology issues refer to the downsides of using technology in a classroom setting. Technology issues include programs crashing, apps not working, and videos not playing, not being interesting, or being too lengthy.	Sometimes the technology does not work the way you want it to, or simply, I know we had an activity that my group was not able to finish because none of our technology worked and so I think that is when teachers need to be prepared to go to plan B and not focus so much on the technology. I don't know it seemed like the technology was an impediment to the learning experience that day, because there was so much that we could have done without it and still learned it, but we didn't, because we were halted by the technology (Carly, Interview #1, Lines 90-96).

4.2.2 Perceived Disadvantage: Classmate Participation

Classmate Participation mostly refers to how students in EDP 370 participated during class, group work, and presentations. Also, classmate participation refers to how well students prepared in order to take part in the class activities. All three participants shared their own perceptions of how they thought their fellow classmates performed in class as well as how they perceived their own participation.

The perspectives show a mixture of frustrations in regards to how the pre-service teachers perceive their future students will react to the flipped classroom and frustrations surrounding their own experiences with the flipped classroom in regards to classmates' participation. The overall theme is that in a flipped classroom there are going to be those students who do not prepare what the instructor has asked them to prepare. As mentioned in the previous section, this lack of preparation by fellow classmates led to participants feeling as if they missed important content. One participant stated that she understood that in order to get the amount of content out of the course, there needed to be a way to split the material, yet she did not think the reciprocal teaching worked as well as it could have. And while there were videos of the class that could be re-watched for clarity, if groups did not do a good job at presenting material then re-watching the class video would not provide any further aid. Amy tried to come up with solutions to this problem, yet was unable to at the time of the interview, at least one that she was satisfied with. All three participants suggested watching the videos in the class, yet realized this defeated the purpose of the flipped model. This is a tricky area in regards to the flipped classroom; unfortunately solutions to students not preparing are beyond the scope of this study. The pre-service teachers however recognized

this issue as a disadvantage to the flipped classroom. Students not coming to class prepared, in a flipped classroom, affect not only that particular student, but also the class as a whole since the crux of the flipped model heavily depends on highly engaging learning activities and collaborative group work.

4.2.3 Perceived Disadvantage: Access

Access to resources refers to the pre-service teachers' perceptions of their future students' ability to interact with online materials such as lecture videos, materials, assignments, apps, iPads, or any type of technology. Access also refers to the pre-service teachers' perceptions of the types of access needed by the teacher in order to perform a successful flipped classroom. While some were more adamant than others about the importance of the access concern, all three participants brought up the concern regarding access.

It is rather clear that a majority of the pre-service teachers' concerns pertaining to the flipped classroom model surrounds the idea of access. Amy shared her concerns in relation to the teachers' needing access to software programs, technology, and professional development. The majority of the perceptions stem from a concern about students' access. Beth, who had taken a workshop during her senior year of high school about the flipped classroom, stated that she was "turned off" from the beginning because she knew "not all students are going to have access." She furthered this point by sharing, "it's just hard for me to like something, when I know not necessarily everyone can do it." Beth and Carly had a particular focus on students from low socio-economic statuses and their difficulties with access. Both Beth and Carly's perceptions suggest that if they were to teach in a low-income

school, then the flipped classroom is not going to be successful. Relating to the concern about low-income students and schools, Carly was particularly concerned about students selling the devices in order to get money for food. This provided an interesting perspective to the issue of access, suggesting that access to technology places students at a higher risk because they are in control of something of value. All three pre-service teachers shared their worry regarding access. The main concerns focused on students not having access to the Internet at home, and while there is a growing trend of students having cellular devices with Internet access, not every student owns such a device. Therefore, the concern for access houses a deeper concern in regards to students having an equitable ability to have access to a flipped classroom education. While these perceptions show great empathy for students they also suggests that if struggles with access becomes an issue, the flipped model would not be attempted.

4.2.4 Perceived Disadvantage: Technological Issues

Technology issues refer to the downsides of using technology in a classroom setting. Technology issues include programs crashing, apps not working, and videos not playing, not being interesting, or being too lengthy. The pre-service teachers had a variety of thoughts on technology issues, main themes did appear.

These perceptions center on technology issues that were either experienced by the pre-service teachers or issues they perceive would happen in their future classroom. The majority of the disadvantages arise from technology issues themselves, such as crashing applications, devices not "talking" to each other, difficulty learning a new application in order to apply content, etc. The most interesting perception in regards to using technology in

the classroom is that it will become more of a distraction than a benefit. Carly, in particular, perceived technology as distracting to students and as a tool that could take focus away from content. Amy described her own frustrations with technology not working in the class. She also told of teachers, who have flipped their classroom, having difficulties uploading videos to the Internet for student use, consequently "wasting time." Beth almost shrugged off the technology issues by stating, "Of course there is always things that are going to go wrong." All three pre-service teachers recognized that technology issues would arise, not only in a flipped classroom, but anytime one deals with technology. They all stressed the importance for the teacher to have a "Plan B" ready so that class time is not squandered.

4.3 Themes Concerning Perceived Advantages of the Flipped Classroom

This section focuses on the advantages perceived by the pre-service teachers. There were six overall themes presented by the participants: increased one-on-one and small group instruction, increased focus on actual instruction, increased parental involvement and support for staff, increased access to technology, increased ability to differentiate, and increased benefits to students. Table 4.8 outlines each theme followed by an in-depth discussion.

4.3.1 Perceived Advantage: Increased One-on-One and Small Group Instruction

Increased one-on-one instruction and small group instruction refers to teachers being able to work with a student and assist them when needed, as well as challenge them. Small Group instruction refers to a teacher being able to do the same with 2 or more students. There seemed to be an overall perception that the flipped classroom would allow for more time in-class to be spent doing these types of activities.

The pre-service teachers' perceptions center on the teacher taking on more of a facilitator role in the classroom; this is different than most traditional classroom settings where the classroom environment is teacher-centered and not student-centered. The importance of this particular advantage is displayed in the fact that each of the participants mentioned how they liked the idea of teachers being able to work more closely with individuals or small groups of students. With the class freed from the constraints of the lecture, students are able to benefit from a more personal approach to instruction. Amy and Carly discussed their experiences with online classes in which they felt no connection or relationship with their instructors, Beth discussed how college differed from high school in the fact that there is less opportunity to build relationships with professors because they are only seen once or twice a week. All three Pre- Service teachers suggested that the advantage of working closely with an instructor would aid in the relationship building between teacher and student.

4.3.2 Perceived Advantage: Increased Focus on Actual Instruction

This refers to teachers being able to focus more on actual instruction during a class period instead of lecturing. Two of the participants brought this theme up during interviews. Amy heralded the benefits of the flipped classroom in regards to teachers being able to focus on "actually teaching." Amy suggested this was due to the teachers being able to prepare, in advance, lecture videos that were concise and to the point. Carly suggested that this advanced preparation of lecture videos prevented teachers from "winging it" while they were teaching.

Table 4.7 Themes Concerning Perceived Advantages of the Flipped Classroom		
Sub-Theme	*Operational Definition*	*Exemplary Quote*
Increased One-On-One and Small Group Instruction	Increased one-on-one instruction and small group instruction refers to a teacher being able to work with a student and assist them when needed, as well as challenge them. Small Group instruction refers to a teacher being able to do the same with 2 or more students.	Dr. D had me hooked when she mentioned, either she mentioned it or it was in one of the videos, that a flipped classroom allows the teacher to have the teaching at home and then work with the kids one-on-one. That sealed the idea for me that it was good (Amy, Interview #2, Lines 183-186).
Increased Focus on Actual Instruction	This refers to teachers being able to focus more on actual instruction during a class period instead of lecturing or other logistical elements of teaching.	That sealed it for me, the teacher saying, “I can actually teach” I mean, that’s so true! (Amy, Interview #2, Lines 186-187).
Increased Parental Involvement and Support for Staff	Increased parental involvement and support staff refers to a parents ability to become more involved in their child's education due to the implementation of a flipped classroom and the use of instructional videos to learn along with their student and/or be aware of how the teacher is teaching a certain topic or subject. Increased support for staff refers to the same situation as parents but now the videos can act as a support for teacher assistants and possibly substitute teachers.	So, if a parent is going to be willing to help their kid, math gets taught so many different ways and a parent might not be up-to-date on the latest model the teacher uses, so if the parent can go back and look at the flipped classroom videos that's going to be really helpful (Beth, Interview #2, Lines 119-121).
Increased Access to Technology	Increased access to technology refers to the positive affects, described by the pre-service teachers that result from students having access to technologies and/or online instructional videos. This also refers to the benefits of the flipped classroom in regards to exposing students to new technologies.	There's potential for learning new technologies and it's definitely going to force me to use technology, which is exciting (Amy, Interview #3, Lines 380-382).
Increased Ability to Differentiate	Increased differentiation in the classroom refers to the ability of the teacher to have different students working on different things at the same time in the same classroom as well as meeting the needs of each learner.	I like the idea of reducing frustrations for those students who need help one-on-one the kids that are in the class who watched the videos and got it can go ahead and just be doing homework while another student can be working with the teacher and not feel like they are interrupting or afraid to ask because the teacher is lecturing, so I thought that was really good too (Amy, Interview #3, Lines 19-23).
Increased Benefits to Students	Increased benefits to students refer to paybacks, different than those listed above, that students would or will encounter in regards to participating in a flipped classroom.	I watched a video on a flipped model, but this kid was like, " I feel like I am more beneficial to the class because in class I am slower at learning and so I can't participate, but now that I am at home and I can do it on my own speed I can come to class the next day, I can raise my hand and say 'yea, I know how to do this!'" (Beth, Interview #3, Lines 203-206).

By being able to focus on "the content," the teachers in a flipped classroom can free space in their minds and in the classrooms to become a facilitator instead a dominator of instruction. While students are working through their activities during class time, the teacher can then focus on applying "good teaching" strategies with students in order to challenge and support their individual needs. These perceptions demonstrate that the pre-service teachers involved in this study like the ability of the teachers in a flipped classroom to focus more on pedagogy than other aspects like those in a traditional classroom.

4.3.3 Perceived Advantage: Increased Parental Involvement and Support for Staff

Increased parental involvement and support staff refers to a parents ability to become more involved in their child's education due to the implementation of a flipped classroom and the use of instructional videos to learn along with their student and/or be aware of how the teacher is teaching a certain topic or subject. Increased support for staff refers to the same situation as parents but now the videos can act as a support for teacher assistants and possibly substitute teachers. Beth, in particular, found this advantage of the flipped classroom model to be most beneficial. Perceptions show the importance positioned on parental involvement by the pre-service teachers. They acknowledge the role that parents play in the lives of students. The pre-service teachers all seem to like the fact that the flipped classroom, by way of lecture videos, allows the classroom to become transparent and supports parents' deeper involvement. The lecture videos, as suggested by Beth, allow parents to more deeply understand content while being able to see the teacher of their child teaching. An interesting point that was brought up by Amy was the use of the flipped videos to help support staff in a

school setting. This acknowledges, at least on Amy's part, that pre-service teachers understand the intricate roles differing stakeholders have in a classroom.

4.3.4 Perceived Advantage: Increased Access to Technology

Increased access to technology refers to the positive affects, described by the pre-service teachers that result from students having access to technologies and/or online instructional videos. This section also refers to the benefits of the flipped classroom in regards to exposing students to new technologies.

Pre-service teachers, who were not whole-heartedly in favor of the flipped classroom model (mainly due to access concerns), see the potential benefit of it in regards to exposing students to more or new technologies. Carly demonstrates this by stating students will need the exposure if they are to be prepared for the real world and for the workforce. Amy, in regards to her own experience with technology, realizes that there is room for growth. Amy started out the semester with an old-fashioned flip phone and by interview number three she had her own iPhone. All three participants understand that technology is not going away, therefore they see the flipped classroom as one avenue for exposing students to the technology they will need for future endeavors.

4.3.5 Perceived Advantage: Increased Ability to Differentiate

Increased differentiation in the classroom refers to the ability of the teacher to have different students working on different things at the same time in the same classroom as well as meeting the needs of each learner. The pre-service teachers saw this aspect of the flipped classroom as an advantage for students. Due to class time being freed up, they saw the benefit this could potentially have for their future students as well.

Based on the perceptions of the pre-service teachers, a large emphasis was placed on the need for differentiation in the classroom. In a traditional classroom, meeting the needs of each and every student can be challenging, yet the pre-service teachers' perceptions demonstrate that this needs-meeting can take place in a flipped classroom. The differentiation comes in the form of students being able to self-pace their learning, students being able to re-watch lectures to review or clarify content, and teachers sitting down one-on-one with students who either need more support or need to be challenged. Amy, In particular, liked the idea of students learning at their own pace by stating: "I'm not a math person or I'm not a science person," but you know, I'm not a science person, I'm not a math person because in the class, I didn't get it and I had a test on it and it was miserable. I hated that and you end up crying because you just flat out don't know how to do it, but at my own pace, I am interested in those things." Beth also shared a story about a young student she watched in a video feeling like he could participate more because he could learn at his own pace. The pre-service teachers involved in this study had positive regards toward the flipped classroom's ability to provide ample class time to differentiate.

4.3.6 Perceived Advantage: Increased Benefits to Students

Increased benefits to students refer to paybacks, different than those listed above, that students would or will encounter in regards to participating in a flipped classroom. During the interviews, the pre-service teachers provided a few added benefits in regards to students and the flipped classroom that did not necessarily fit into one of the already mentioned categories.

Beyond the advantages mentioned above, the flipped classroom provides even more benefits to students. The perceptions of the pre-service teachers suggest that students who are normally shy or introverted in a traditional classroom become more active in a flipped classroom. This might be due to the fact that they have more time to think and process the material than the few seconds provided in most traditional settings. Carly pointed to the fact that the flipped classroom teaches more than just the content of the subject being flipped. Time management, self-regulated learning, commitment, etc. are all aspects that the flipped classroom teaches. These life skills are usually difficult to integrate into a traditional classroom environment, yet as perceived by the pre-service teachers, can be integrated with ease in a flipped classroom.

4.4 Perceived Responsibilities of Teachers and Students in a Flipped Classroom

Based on the above perspectives of the pre-service teachers' regarding the advantages and disadvantages of the flipped classroom model, major themes arose pertaining to the responsibilities of teachers and students in the flipped classroom. All three participants brought forth perceptions regarding the responsibilities of both teacher and student in a flipped classroom, which are discussed below.

Teacher responsibilities include making or finding videos for students to watch, creating assignments, uploading videos to the web, organizing the web resources in a cohesive manner, providing feedback to students, explaining the flipped classroom in detail, providing support for students, assessing students' needs, adjusting instruction based on those needs, and finding readings for the class. The pre-service teachers regarded the responsibilities of the teacher as the main deciding factor of the success or failure of the

flipped classroom. The teacher's responsibility, as suggested by the participants, was to not only facilitate the learning but to also guide the students as they adapted to the new learning style. They felt as if they had been "thrown into" the flipped classroom and commented on how they wished there had been more support as they navigated the flipped model. An interesting turn was that regarding one Pre-Service Teacher in particular who stated during the second interview that she believed the flipped classroom model allowed the teacher to become "lazy" because they were putting a lot on the students and were no longer lecturing the content. During the third interview, after reading an article on the flipped classroom in a K-12 setting, the same Pre-Service Teacher said she realized there is a lot of work and effort on the teacher's part in order to implement a strong flipped classroom model. These perceptions of the pre-service teachers demonstrate that the teacher is a vital factor in the implementation of a flipped classroom.

Student responsibilities include watching videos, taking notes when necessary, reading materials, coming to class prepared, participating in group activities, sharing ideas, providing feedback, presenting information to the class, asking questions to the instructor, etc. There was a split in the perceptions of the pre-service teachers in regards to the responsibility placed on student in a flipped classroom. One felt that the flipped classroom placed a lot of responsibility on the student and perceived that to be an advantage for the student. Another felt that the increase in responsibility might be too much for younger students but would be more appropriate for the older students (high school and college age). Finally, a third participant felt that the responsibility placed on the student was too much at any age. These findings were interesting if one looked at them in relation to the participants

approach to the class. Amy suggested that students who are more self-directed learners might be more successful in the flipped classroom because they are used to increased levels of responsibility, however Carly also suggests that the flipped classroom is an avenue that teachers can use to help students become more self-directed in their learning especially as the students gets closer to college age.

Overall the findings show that the pre-service teachers involved in this study have a mix of perceptions in reference to the flipped classroom. All the participants pointed to aspects of the flipped classroom that they did and did not appreciate. Most of the negative perceptions refer to issues they had with organizational matters, technological issues, concerns about student access, lack of classmates preparing for class, and the time it took to complete assignments outside of class. The majority of the positive perceptions refer to participants being able to work with new technologies, learning about a new teaching style, working one-on-one with students, increasing the parental involvement in their future classrooms and helping meet the needs of all learners.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This purpose of this study was to explore pre-service teachers' perceptions of their flipped classroom experience. Three participants who were enrolled in an Applied Child Development course (EDP 370) at North Caroline State University were interviewed three times through the fall semester of 2013. This study's purpose was to analyze the pre-service teachers' perceptions in order to recognize what they saw as positives and negatives of their experiences in a flipped classroom, to understand how their experiences influenced their perceptions of the flipped classroom, and if those perceptions promoted or hindered their willingness to flip their future classrooms. Another goal of this study was to examine the flipped model in terms of higher education, specifically in teacher education.

The flipped classroom model is a strategy that allows class time to be freed up by taking the lecture out and placing it online (Lage, et al). With the lecture moved to outside class time, the class period was used for hands-on activities that encourage active learning and participation, collaborative projects, and real-life application. Pre-service teachers involved in this study provided a myriad of perceptions in terms of what they liked and disliked about the flipped classroom model. Interviews provided qualitative evidence showing that the participants saw benefits to using the flipped classroom model, they were hesitant to implement it due to concerns surrounding equitable access.

Through the analysis of the interviews, it was clear that participants had mixed perceptions regarding the flipped classroom model. Amy was in support of the process from

beginning to end, Beth was weary of the flipped model in the beginning and by the end of the semester saw benefits in the model that she would implement in her future classroom, finally Carly went back and forth after each interview, finally settling on the idea that the flipped classroom was not a model that she could see herself using in the future. All participants stressed that a flipped classroom needed a structured organization, scaffolded implementation, and a need for class time to meet more than once a week.

The perceptions provided by the pre-service teachers have a lot to offer the realm of teacher education. While there have been studies, presented in Chapter 2, involving the flipping of higher education, these particular pre-service teachers can provide a small glimpse into what is needed in order to flip a teacher education course successfully. They also provide perceptions as to if Colleges of Education should teach pre-service teachers the flipped model.

5.2 Contributions to the Field of Teacher Education

Findings from this study present a number of contributions to the field of teacher education specifically regarding implementing and teaching the flipped classroom model. The results of this study focuses on the perceptions of the pre-service teachers involved in the qualitative interviews. Although the number of participants was small, their perceptions were vast in regards to their impact on future implementations of the flipped model.

To begin with, if a flipped teaching model is to be used in teacher education, it was proposed by participants that a clear outlining of what a flipped classroom is and what is to be expected should be given to pre-service teachers' at the forefront. This would help with any confusion and allow pre-service teachers' to begin processing the new learning

environment. *Table 4.3-Pre-Service Teachers' Initial and Ending Definitions of a Flipped Classroom* and *Table 3.1-Pre-Service Teachers' Background Information and Approach to Class* suggest that a clear idea of what a flipped classroom entails in the beginning sets the mold for perceptions as the semester progresses. Carly, for instance had the least amount of knowledge regarding a flipped classroom and her perception at the end of the semester was that it was a strategy that she would not implement in her future classroom. In contrast to Carly, Amy had a clear idea of what a flipped classroom entailed and was in favor of the model from the beginning of the semester. All participants stated that they were unaware that the course was a flipped model and how they would have liked to know that ahead of time. Therefore in order for the flipped classroom model to be successful in a teacher education course, the instructor should plan to provide students with a clear vision for how the course will operate, including providing a vignette of the flipped class model in the course description when students register for classes.

It was proposed by the participants that the flipped model would work more successfully if the course met more than once a week for three hours at a time. Colleges of education are leaning more toward the 3 hour seminar class model in order to minimize interferences with students going out into the field for observations. However, if a flipped model is to be used in such courses, participants suggested the class meet twice a week for an hour and half in order to lessen or spread out the workload for each week. If teacher education courses are to be flipped, then, it is suggested, that pre-service teachers' who are new to the flipped process need to be given a workload that is similar to that of a traditional college education course, at least in the beginning. The once a week meeting time let to the

participants feeling overwhelmed with the coursework. In the case of Beth and Carly, this feeling led to an overall apathy toward the coursework in general. Pre-service teachers in the study also suggested that meeting more often in a week would allow for more face-to-face interactions between instructor and learner, thus granting more frequent opportunities for students to ask questions and clear up misconceptions.

The optimization of the use of class time is of the utmost importance to an instructor in a flipped classroom (Foertsch et al., 2002). Teaching in a flipped classroom required that the newly freed class time be used in a way that elevates the learning of the students in such a way that requires higher level thinking and application. One strategy that is often used in teacher education is reciprocal teaching (Slavin, 2011). Reciprocal teaching allows for collaborative group work in the classroom, which requires students to build of one another's experience with the material prepared ahead of time. In this study, all three participants reported their dissatisfaction with the use of reciprocal teaching. Therefore it could be assumed that in order for the flipped classroom to work in teacher education courses, reciprocal teaching should be implemented with accountability measure for group work so that each student feels as if the other is pulling their on weight in assignments and discussions. Often there are students who only watched the lecture yet did not do the reading, did the reading but did not watch the lecture video, and another student did none of the assigned homework. In this situation, reciprocal teaching can provide more frustrations than help, therefore students should be given accountability measures to help combat said frustrations. The accountability measures would further promote students to feel the need or importance of coming to class prepared. Further modeling and scaffolding should take the

form of showing students how reciprocal group work should work and how to glean the same information from various sources so that students can "get on the same page" during class discussions, especially when choice is worked into homework assignments.

5.3 Easing Anxiety for First Time Flippers

The flipped classroom is by far a new way to approach learning, responsibility, and accountability, especially for students involved in a flipped classroom for the first time. An important aspect of this study was that the pre-service teachers involved were doing just that; they were first time flippers. Their perceptions propose a couple of things in regards to teacher education courses, especially if a student's first time in a flipped classroom is during the collegiate years. The first implication is that learning in a flipped classroom feels uncomfortable. This feeling can be magnified if a student is experiencing the flipped model for the first time in a college setting—after thirteen or more years of a traditional class setting. This feeling of discomfort can easily be combated with a strong system of support and reinforcement. Second, as mentioned above, it should be assumed that these students are going to need an in depth introduction to what a flipped classroom is, what it will look like, and what is expected of them as students. Thirdly, there should be class time dedicated to modeling what the students' role will be in a flipped classroom. This could take the form of the teacher playing a short lecture video for the class, modeling how to take notes, modeling how to rewind, fast-forward, re-watch, etc., and modeling how to come up with questions. The flipped classroom is a brand new way of approaching education, therefore, there needs to be a way for students to see what this kind of learning looks like. Finally, the perceptions of the pre-service teachers suggest the flipped classroom model be scaffolded into

implementation, especially for those new to the strategy (Carpenter, J. P., & Pease, J. S., 2012). This scaffolding can take the form of discussing the process as a whole, discussing the group work requirements, and the teacher being more in-depth with the logistics of the flipped classroom at the forefront then slowly backing off allowing students to slowly take control of their learning. Now these suggestions could progress more quickly in a college setting than a K-12 setting, but as the interviews suggest, in order to allow for success in teacher education, the flipped classroom needs to have a solid structure in place so students can adapt to this new style of learning. Pre-service teachers at North Carolina State University also take a Technology Education class in which the flipped model is introduced. Are students more open to the idea of the flipped model if this course is taken prior or concurrently with EDP 370? While this is beyond the scope of this thesis, it would make sense that having an introduction to the strategy of the flipped classroom be nothing but helpful in the success of EDP 370. It is possible that the extra support provided by the Technology Education course could ease or alleviate some anxieties felt by participants. In fact, during the final interview with Beth, she mentioned she was currently taking the Technology Education course and was more open and excited about the idea of the flipped classroom and looked forward to sharing her experience with her peers. She also stated that she looked forward to learning more about it and hopefully finding new ways in which she could incorporate the flipped classroom strategy.

5.4 Learning How to Learn with Technology

It appeared that the perception of technology, whether positive or negative, derived from each of the pre-service teachers' own experiences. These experiences with technology

in turn influenced their decision to flip their future classroom. Amy had limited experience with technology but was open to its usefulness and willing to learn more about it. Beth was a little more familiar with technology yet found its limitations frustrating. Carly stated that she and technology "did not get along" and was in favor of the old fashioned way of teaching. According to Davis, Hartshorne, and Ring (2010) students are often more technology savvy than teachers. While this may not come as a surprise to most, it is an issue. If technology is used in teacher preparatory programs, then this issue can begin to be remedied. Based on these two studies, I argue that in order for a Pre-Service Teacher to be open to flipping their future classroom, they must have an open mind in regards to technology. This implies that teacher education courses should have opportunities for students to interact with technology and practice troubleshooting skills.

Bennet, Maton, and Kervin (2008) describe digital natives as students who have been "immersed in technology all their lives." This immersion allows digital natives to have more technical skills and differing learning preferences than generations that came before them. The idea that can be applied from this work is that the current and future pre-service teachers are considered to be part of this digital native generation. While being immersed in technology from birth might mean these pre-service teachers have a differing way of thinking, one cannot escape the fact that these natives do not use technology to learn. Technology is often used as a way to disconnect, distract, and more often than not, entertain. The flipped classroom asks students (digital natives) to use technology to learn, not escape. This is a fundamentally differing way of looking at technology.

Digitally native students know how to use technology by way of YouTube.com videos, social media, gaming, and various applications ranging from health and wellness to "Flappy Bird." However, little attention is drawn to how to *learn* using technology. Watching a cat video on YouTube is different than watching a video that teaches you how to do something. Attention needs to be paid in differing ways and this is the process that should be focused on in the flipped classroom. EDP 370 required students to use videos, apps, interviews, and devices in a fundamentally different way then they use the same technologies in their personal life. This needs to be addressed on day one of a flipped classroom no matter the age level being flipped. The processes in this particular flipped teacher education course required the students to deconstruct the technology "as if" they were teachers and not for personal use. While the flipped classroom in K-12 focuses on teaching students to learn how to learn using technology, the college classroom does the same with the added level of answering the question, how would you teach students to use this to learn? This new perspective needs to be modeled in a teacher education classroom.

Another aspect of learning how to learn in a technology rich classroom is considering where the burden of learning is placed. In a traditional classroom, it can be said, the burden of learning is placed on the teacher who disseminates knowledge to the students (students attend class, take notes on the instructor's synthesis, complete the readings as reinforcement, prepare for tests/projects outside of class, and the instructor makes the choices and does the synthesis for the students). In the flipped classroom this burden is shared between teacher and student (teaching provides various avenues for students to get information, students select from a variety of resources and a variety of modalities how to best prepare for class,

attend class and do the synthesis preparation in in class, the students make the choices and are supported in synthesizing). In such a classroom as EDP 370, the students had an onslaught of information from which they could gather their information. This often overwhelmed the participants in the study because they had never been given so much freedom in choice. The flipped classroom does not help students cope with the feelings of being overwhelmed, yet as the burden of learning is shared between teacher and student, support should be provided to show students that they can choose the best way that aids their own personal style of learning. Pre-service teachers need to feel as if they are getting all of the necessary information. Whether this information is in terms of assignment requirements or content of the course, they need to feel that the flipped classroom is not robbing them of information they would gain in a more traditional setting. While the flipped classroom does shift the burden of learning slightly in the students' direction, support and modeling should be provided in order to ease student concerns in this regard.

5.5 Contributions to Technology Education

The field of Technology Education is growing as more and more advancements are being made in the area. As far as the flipped classroom is concerned, this study provided some insights into how Technology Education can help support this type of classroom setting. To begin with, organization is critical in a technology rich classroom. Second, as mentioned by all three pre-service teachers, providing students with a rationale for the technologies either before or after application is crucial. Students want to know why they are using a technology and how it can help them in their future classrooms. Lastly, students need to be given opportunities in class for troubleshooting. Problems with technology arise on a

daily basis in classroom all over the nation, allowing pre-service teachers with opportunities to troubleshoot in a safe environment will provide them with the confidence to address technological issues in their own classrooms.

The instructor in a technology rich classroom also has a burden to carry, although this burden might be a more of a "behind the scenes" form. First, the instructor should know and take into consideration the prior experiences of students. This will help with knowing what students know beforehand and what they might struggle with so appropriate support and challenge can be provided. Second, instructors should scaffold opportunities to learn with and teach with technology. Students can use the technology in the class but it must be explicitly taught how to learn with technology, as mention previously. Students, in a teacher education course should also be given numerous experiences to teach a technology to their peers. Knowing how to use a technology is different than teaching someone how to use a technology and how to use it in a specific way. pre-service teachers will be asked to teach technologies to their students, thus they should be provided with ample chances to do so in a safe environment under the watchful eye of an instructor. Thirdly, instructors should model expected behaviors for students, especially in a flipped classroom. Learning and teaching in such an environment requires different types of skills, thus the instructor should model these behaviors for pre-service teachers. Opportunities to deconstruct behaviors and discussions should be provided also for further support. Finally and possibly most importantly, the instructor must help students who feel overwhelmed by either technology or the flipped process or both. This is where knowing students prior experiences will help tremendously

because instructor will already have a baseline of students that he or she knows to "look out for."

Technology Education is an area that will not be going away in the coming years. Using the flipped classroom as a strategy can provide time in class to help students both learn to learn with technology and also provide them the needed support to navigate the new experiences they will come across during a semester.

5.6 Will They or Won't They?

One of the focuses of this study was to understand how the Pre-Services Perceptions would influence their decision to flip their future classrooms and how this perception was framed by their own personal experiences. During the final interview, when asked if they would consider flipping their future classroom only one participant said they would while the other two were very quick "no's." During the second interview the same participant that said they would during the first interview kept their answer. Another participant said they would consider it, and the final participant said they would if they could guarantee students had access. During the third and final interview, again the one Pre-Service Teacher who said they would flip their future classroom stayed true to form and kept her answer. The second one who changed their mind stated she would still consider flipping the classroom now that she knew more about it and could make it her own to met her own teaching needs. The third participant, who had said she would consider it if students had access, changed her mind to another quick "no."

So what does this mean? The findings point to the fact that pre-service teachers are willing to flip their own future classrooms if they, themselves, had a good experience with

the flipped model. This study's scope does not cover those pre-service teachers who do not have an experience with a flipped classroom model. The main concern for pre-service teachers, or any teacher for that matter, with reference to the flipped model is that of access. If the access issue could be resolved in an equitable fashion, then the findings point to pre-service teachers being more willing to implement a flipped model into their classrooms. While this study is in no way generalizable to the whole of pre-service teachers, it does provide a glimpse, albeit small, into the thoughts of pre-service teachers' perceptions of the flipped classroom.

Pre-service teachers had a positive regard for the availability of time opened up for more one-on-one time with instructors and collaborative group work. Also, the participants liked that the flipped classroom allowed for more parental involvement.

In summary if the flipped classroom is to take hold of teacher education classrooms, it is proposed that the following take place, as suggested by the perceptions of the pre-service teachers' involved in this study. The course should meet more than one time a week, provide accountability measures when using the reciprocal teaching strategy to promote student responsibility, provide a strong introduction to what a flipped classroom is and entails, provide a similar workload to a traditional classroom—at least in the beginning, have an instructor model what the roles of the student and teacher looks like in a flipped classroom, scaffold assignments and instructor control so that students slowly take on ownership of their own learning for the course, provide more interaction with technology and troubleshooting techniques. These are just some perceptions as brought to light by the pre-service teachers' in this study.

5.7 When to Flip?

There was a program in North Carolina called the Teaching Fellows Program that provided scholarships for seniors in high school who wanted to become educators. When accepted to this program it was a requirement to go on a seven-day bus tour across North Carolina during May in between the freshman and sophomore year of college. This tour took Fellows to a number of public, private, magnet, and charter schools, business, and community attractions. This "Discovery" trip was created to give Fellows a different perspective and open their minds to the different facets of education. The question that always came up at the end of the trip is whether the tour was given too early in the Fellows educational journey for them to truly grasp the significance that was trying to be conveyed. This example was given to ask the same question of flipping teacher education, when do you flip?

The majority of the students in EDP 370 were sophomores; by random selection this study had two of the seniors from the course. By flipping a teacher education course the instructor is asking students to not only experience this new style of learning but also evaluate its educational benefits and downfalls from the lens of an educator. When in a teacher preparatory program do pre-service teachers begin to view their world through that lens? Is flipping a sophomore level course too early in their educational journey? While the answers to these questions go beyond the scope of this study, the pre-service teachers in this study did provide some perceptions that can provide a small amount of insight. Amy, who was a senior in her program, was often able to look at the flipped classroom as an outsider looking in. She often stated that she thought the flipped classroom was a good model that

needed to be further developed, “I hope that it doesn't get shot down for its flaws, I think it could keep going and grow into something awesome.” Beth, who was a sophomore, seemed to have perceptions that did not go past her own experience in the class. In the third interview she realized that the flipped model could be molded into a version of her own liking, but still projected her own experience onto the model as a whole. Carly, who struggled with the flipped model the whole semester, had a hard time finding any educational value in the strategy. She, much like Beth, projected her own frustrations as a student with the flipped classroom onto the model as a whole, therefore being unable to look at it through the lens of an educator. So what does this imply? These perceptions imply that taking an educator perspective, at an early stage in preparation, poses a challenge to pre-service teachers. Yet, much like learning how to learn with technology, when are pre-service teachers taught to use an educational lens? What does that process look like in teacher education?

According to Davis et al. (2010), a study which focused on first-semester, pre-service teacher education students’ understanding of the concept of innovation, including its role in promoting students’ learning and development, some pre-service teachers indicated a “discomfort with technology and associated with a teaching philosophy that feared innovation.” Further, this study provided statements from pre-service teachers that indicated students felt that innovative teachers not only had to “learn” new technologies but also apply them to their teachings while also displaying appropriate pedagogical methods. Students saw the importance of not only “knowing” about technologies, but also felt the pressure of applying such technologies effectively. If teacher education courses were flipped then time,

in class, could be used for making sure students had time to discuss and address the concerns listed above. Davis et al. (2010) also discussed that without support, students might feel threatened if put in an experience that was heavily integrated with technology, thus leading to a resistance to integration. The balance of support and challenge must be carefully maintained so as not to send pre-service teachers into a state of disequilibrium from which they cannot recover.

At the conclusion of this study, during the final interview, participants were asked this question: "Do you think that being part of this thesis process made you approach the class differently than you would have if you were just doing it like a regular class?" The responses from the participants are below.

Amy

> I, honestly and I'll just be straight here, I think that it made me, when you suddenly feel like you are part of something a little bigger, it makes you feel responsible to pay attention and think out what you are doing when you know you have to answer questions. You're like, "ok, I become kind of an important resource here," so your experience becomes, and I hadn't really thought about that, but your experience becomes important because somebody else is depending on you. I think in some of our previous interviews, giving a student responsibility and I talked about that in my parental letter and in my response to Lacy at the Y-Learning program. The minute my little student had the opportunity to be helping somebody else, to share her knowledge, to be resource to somebody, that's when she lit up, that's when she was excited. I honestly think that that's a really good point, when somebody is relying on

you to be able to communicate about what you've learned that makes you more focused, more excited about it.

Beth

Um, I wouldn't say it caused me to act any differently in the class, but after I was finished with the class and I thought about some of the questions that you had asked me, it was more of like a self reflection thing, like did I do my part or did I just blame it all on the fact that it was a flipped classroom and I didn't give it the chance to be ok in my mind. So definitely some self-reflection was in on that, I don't think that I changed during the class at all.

Carly

Mm, probably not. No, I'm very not influenced much by this kind of stuff. Maybe if I found the subject more interesting, maybe I would put more effort in it because I was in the research, but no.

What do these final perceptions imply? They imply that the decision to flip a college course, specifically a teacher education course should not be taken lightly. Pre-service teachers come to a preparatory program with varying degrees of experiences; therefore a flipped teacher education course needs to be organized and differentiated in a way that addresses the unique needs of its students. Should Colleges of Education teach their pre-service teachers how to flip their future classrooms? The answer is maybe. The flipped classroom is a large undertaking that, with time, could prove to be more beneficial than a traditional classroom setting. However, especially in the beginning of implementation, there

should be processes put in place to guide students on how to navigate this new way of approaching content. An important perspective to realize is that the flipped classroom is not a strategy that works for every student and every instructor. Therefore, the benefits and costs should be weighed accordingly when deciding to flip any classroom setting.

5.8 Recommendations for Future Research

This study provides just a small glimpse into the perspective of pre-service teachers who were involved in a teacher education course that was flipped. Like with any research, this study provided more questions than it answered. As mentioned in Chapter 2, there is still minimal research on the flipped classroom, especially in quantitative terms.

To begin, further research should focus on student growth and achievement. Evaluations of a control group and a flipped group should be studied in order to track amounts of growth when comparing similar characteristics in student make-up and content being taught. Is there a significant difference in growth between a traditionally taught course and a flipped course? Do students feel more supported in one or the other? Do students feel they gained as much content knowledge in a flipped course compared to a traditional course?

In regards to teacher education, a study should be done comparing perceptions of a flipped course of sophomores and a flipped course of seniors preparing for student teaching. This study should focus on the differences in perceptions between the two stages of teacher preparation. How do they differ? How are they similar? Are students' perceptions more student-centered or teacher-centered and if so when?

A longitudinal study should be completed with pre-service teachers who were either taught using a flipped model or who were taught how to implement the flipped model (or

both). This study could focus on those teachers and if they are flipping their classrooms or implementing any changes to a traditional classroom setting. How did that experience in their teacher preparatory classes influence their teaching? If they are flipping their classroom (or modifying the traditional classroom in any way) how did their experience in flipped classroom help or hinder their decisions? How are they modifying the aspects of the flipped classroom they did not enjoy for their own students?

As the flipped classroom continues to gain popularity so will the amount of research on the subject. Above are just a few recommendations for research. Any research done on the flipped classroom should be done in hopes of furthering the profession of education.

5.9 Personal Reflections

After conducting this research study, it is obvious that more needs to be done. Leaning on my own personal experience with the flipped classroom, this thesis took a more personal role for me as a researcher. In telling others, including educators, about the flipped classroom I encountered two kinds of people: those who loved the idea and those who adamantly did not. In fact, in a workshop that discussed the flipped topic a future teacher walked out because they could not get around the issue of equitable access. Therefore this research was very dear to me as I went on a quest to shed an honest and positive light on the flipped classroom.

As an educator, this research has allowed me to take an honest look into the flipped classroom. I have been made aware of its aspects that I do not necessarily agree with while also allowing me to find solutions to those same aspects. This thesis has also re-lit my passion for teaching. As I finish my Master's Program I am eager to get back into the

classroom and provide my future students with a flipped classroom that hopefully addresses all of the concerns portrayed in this study.

In conclusion, it should be re-stated that the flipped classroom is not a one-size-fits-all approach to teaching. There are some students who this model will not work for as well as teachers whose personality and perceptions this model will not mesh. With that being said, for those who are looking for a way to gain more time in the class and possibly reach more students, the flipped classroom is an approach to be considered.

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APPENDICES

APPENDIX A

PARTICPANT RESPONSES TO TECHNOLOGY PRE-ASSESSMENT

BEGINNING OF SEMESTER

SCENARIO #2: The school / center you work at has just decided to go 1:1 - that means all of your students have access to a laptop / iPad to work with in your classroom and at home. (*Note: Currently more than 1/3 of the counties in NC are 1:1.)*

- What principles will you use to integrate this new technology into your teaching / mentoring? How will you use this innovation to promote optimal development?

Participant A:

"One of the first things I would do is design a fun, interactive overview and introduction to the technology. I would lead my students through it as a group. I'd want it to be interactive so that I could maintain their interest and focus as I was teaching them how to use the technology. Following the introduction, I would have a first assignment for them to complete individually. As they were going through the assignment I could help students that didn't understand fully what I said in the overview and answer their questions, while students that didn't have any troubles would be able to continue. This would be important because I could answer those questions on an individual basis and make sure the student who asked fully understood the answer. That is how I would first integrate the new technology. Following that assignment, I would address any concerns or issues that arose during that time that I think all the students would benefit from hearing. After that, I would ask the students throughout the semester what they thought we be interesting ways to learn via the technology. Using their ideas and my own assessments of how they were learning the best with the technology, I would design coursework that implemented both. After working with this type of teaching style for several years, I think that I would have a more consistent understanding and application of what works and what doesn't. At the same time, however, since technology is transforming constantly I would like to keep my finger on the pulse of each different class each year and keep the coursework updated, exciting and as applicable to my students as possible. This would help me maintain optimal development. Another way to do that would be to continue working individually with students to address their personal learning needs. A teacher can't let the technology become and excuse for not teaching. An iPad or computer is a tool. Just like a teacher wouldn't hand a child a ruler and expect it to teach them how to measure, we can't hand a child an item of technology and expect it to make sure they're comprehending the material"

Participant B:

"I heard a speaker once that had the idea to assign students to watch videos on new materials before coming to class the next day. The idea and motivation behind this is so more class time could be spent on applying the new material and working on comprehension rather than introduction. I would expect each student to have reviewed the new materials beforehand and be prepared with any questions they may have for the next class period. I would make the in-class activities so exciting that each student would want to review the new materials so they could participate."

Participant C:

"I would make sure that there are sites that they can access at school as well at home so that their learning experience is not only limited to the class room"

END OF SEMESTER

SCENARIO #2: The school / center you work at has just decided to go 1:1 - that means all of your students have access to a laptop / iPad to work with in your classroom and at home.(*Note: Currently more than 1/3 of the counties in NC are 1:1.)*

- What principles will you use to integrate this new technology into your teaching / mentoring? How will you use this innovation to promote optimal development?

Participant A:
"This semester I learned that kids get really excited to have access to a tool like and iPad. I would integrate it into my teaching by putting learning applications on it that directly applied to what they were learning. Then I would assign a different application each week and tell them that I wanted them to do their assignments particularly using that application. We would do an overview in class and then they could spend the week of classes learning to use it . I could help them with their struggles each day. This way, by the end of term, hopefully they would have had some good experience with a few learning applications that I believed it was really important for them to know how to use. I think that this technology could be used to promote optimal development by incorporating it into the kids's daily lives. Dr. Davis had us using the iPads a lot this semester for whatever we wanted. Having become a familiar tool for many things made for much easier to use for class. I remember that I felt very confused and intimidated by it the first time I turned it on, but now I'm so much more confident with it."

Participant B:
"I would work on a chapter a week. On Mondays we would all have watched the lecture videos over the weekend and if students were unable to watch the video we could spend some time during that class on Monday morning to watch it together. Then there would be an opportunity for the students to ask me questions while everything is fresh on their minds. The rest of the week would be used to apply what we've learned and practice it. I don't think it would be beneficial for a student to have to watch a new lecture video every night, because as a teacher I would have to accommodate for the students who were unable to watch it. That would be an everyday occurrence. The optimal development comes with the opportunities to apply what we've watched the video on. The activities could start off easy at the beginning of the week and progressively get more difficult."

Participant C:
"I would definitely set goals for the students and encourage them to use the technology appropriately. Some principles that I would integrate with the new technology would be to use the technology during class appropriately. Sometimes students can get carried away with the use of technology and the many things that they can do with the technology at hand. Taking their minds away from the reason they actually have the technology, which is to help them with the subject. Possibly have then complete assignments during class using certain applications that would not require the use of the Internet could be a way to efficiently use the technology. Provide them with training on the iPad/laptop and how to use it, sometimes we take this skill for granted but many students have never gotten the opportunity to use a computer for educational purposes and may lack the knowledge to use this technology for educational use."

APPENDIX B

INVITATION TO PARTICIPATE IN THESIS RESEARCH

INITIAL EMAIL TO PARTICIPANTS

Hello Beth!

My hope is that you are doing well! I just wanted to touch base and see if you received my email regarding being a part of my research for my thesis. It basically is three interviews.

I am attaching the consent form again which lays out all of the details. I would like to start the first interview next week and need to know if you are willing to participate. If not, it will still allow me time to ask another classmate.

Please remember to not reveal that you are being asked to participate in order to keep the validity of the research.

I look forward to hearing from you soon! If you have any questions please do not hesitate to ask!

--
Nishelle V. Caudill
N.C. Teaching Fellow
Western Carolina University Alumna
Middle Grades Mathematics 6-9

North Carolina State University
Curriculum Development and Supervision Program
MAT/NCTEACH-Graduate Assistant
Partners II Building 1525

APPENDIX C

COPY OF INFORMED CONSENT FORM

North Carolina State University
INFORMED CONSENT FORM for RESEARCH – District

Title of Research Study: ***Understanding Pre-Service Teachers Perceptions of a Flipped Classroom***

Principal Investigators: Nishelle V. Caudill, Dr. Heather A. Davis, and Dr. Michael Maher

What are some general things Participants should know about research studies?
Students enrolled in EDP 370 are eligible to participate in this research. Participants have the right to be a part of this study, or choose not to participate, and to stop participating at any time. The purpose of research studies is to gain a better understanding; in this case, we want to gain a deep understanding of pre-service teachers' perceptions of a flipped classroom. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researchers to explain more about the study or get more written information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher, Ms. Nishelle V. Caudill, Dr. Heather Davis, or D. Michael Maher.

What is the purpose of this study?
The purpose of this qualitative, interview study is to explore the perceptions and beliefs of pre-service teachers who have volunteered to participate in the program. Findings may provide insight as to why these pre-service teachers enrolled in EDP 370, what their experiences are and have been regarding a flipped classroom, and if they would use the flipped model in their own future classrooms. This could provide insight into the impact of a flipped classroom on students as well as provide thoughts on whether the flipped model is more likely to be implemented if experienced during teacher prep courses. It is hoped that findings from this study will provide insight as to how participating in a flipped classroom as a pre-service teacher may impact the future classrooms of these participants, understand the concerns of participants regarding their own experiences with the flipped classroom as well as what it might take to create a flipped classroom of their own, and begin the process of providing participants an avenue to begin a discourse regarding pedagogical decision making.

What will happen if you take part in the study?
If a student agrees to participate in the project, we would like to schedule a 30-minute beginning interview, a 30-minute mid-way interview and then a 45-minute interview at the conclusion of the semester. In order to protect privacy and meet the needs of all participants, we believe interviews need to be conducted either on or off campus and we will work with pre-service teachers to find a time and place they are comfortable with (i.e. in home, library, coffee shop, etc.). We would request permission to audio record the interview.

Along with the three interviews, assignments submitted, as part of the course will be accessed and possible used. All identifying characteristics that might be in assignments will be de-identified when used for the purposes of the research.

In order to protect student identities and to ensure they feel they can decline participation without penalty, Dr. Davis will not know which students were invited to participate in the interviews.

Risks:
The risks for participating in this project are minimal. Students may fear that if they participate, 'negative' perceptions of the course, instructor, or materials may come forward and they will face repercussions. In order to minimize these risks, written reports will not expose which student the interview answers belong to. If a student agrees to participate, students' names will not appear on the transcripts and any identifying information (i.e. name of school) will be removed (if not critical to answering the research question) or concealed during transcription. Additionally, during data analysis, any unforeseen identifying information that might reveal student identity (i.e. name, subject matter, etc.) will be removed / concealed (i.e. not used in the written report). If a student does experience any discomfort, they may terminate participation at any time without penalty.

Benefits:
Findings from this study are poised to provide insight as to the Pros and Cons of a Flipped Classroom as experienced by pre-service teachers. Understanding pre-service teachers motives to participate in a flipped classroom might provide direction for future professional development, future alterations to teacher prep courses, and future understandings of how a students' mind adapts and grows as a result of the flipped classroom. Findings from this study might provide insight as to the kinds of support students participating in a flipped classroom \perceive they need and are receiving from the course. This might provide direction for summer training and ongoing support for teachers interested in creating a flipped classroom. These findings may contribute to the extant literature on the characteristics of effective teachers and may provide direction for the training of pre-service teachers.

Confidentiality (Privacy):
All audio assignments, recordings and interview transcripts will be kept confidential on a password protected computer and destroyed by August 1, 2020. No identifying information (i.e. real names) will appear on the recordings and transcripts, nor will they be used in reports or in research papers. Direct quotes from the interviews may be used in reports about the research, with identities protected by a fake name.

Compensation:
You will not receive any compensation for participating in the project.

What if you have questions about this study?
If you have questions at any time about the study or the procedures, you may contact the researchers:
Dr. Heather A. Davis
NC State University College of Education, 602J Poe Hall-P
Heather_Davis@ncsu.edu;

Nishelle V. Caudill
Centennial Campus
Partners II Building 1525
nvcaudil@ncsu.edu
336-414-4208

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb

Paxton, Administrator of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/ 515-4514) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148).

Consent to Participate

"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may withdraw at any time. I agree for my interview to be audio recorded."

Name (please print) _____

Signature_____ Date _____

(Researcher Retains This Copy)

(Please Retain Top Copy for Your Records)

(Please Retain Top Copy for Your Records)

APPENDIX D

QUESTIONS FOR ALL INTERVIEWS

Questions Approved by IRB Board for Interview One

1) What can you tell me about a Flipped Classroom?
2) How are you feeling about your experience with the flipped classroom?
3) As a student, what are some challenges that you have faced in this flipped classroom?
4) What are some triumphs you have experienced in this flipped classroom?
5) What are some concerns you have about participating in a flipped classroom?
6) What sort of technological problems can you foresee in a flipped classroom?
7) Can you tell me any positives that you might be able to take away from participating in a flipped classroom that you could apply to your students?
8) Would you consider flipping your future classroom?
9) What are some challenges that you might encounter trying to implement the flipped model?
10) What are 3 major take-aways you have learned so far in the class?
11) Have you read any material outside of class that pertains to the pros and cons of a flipped classroom?
12) If so, what have you read?
13) Have you had conversations outside of class pertaining to the flipped classroom, whether it be your participation in or your thoughts on flipping your own classroom?
14) Without mentioning any identifying factors, what are some of the topics discussed in those conversations?

Questions Approved by IRB Board for Interview Two

1) How are you feeling, now, regarding your experience in the Flipped Classroom?
2) Are your educational needs being met? Please explain why or why not.
3) As a student, what suggestions can you make for improving the Flipped experience for either you or your fellow classmates?
4) Hypothetical: Your principal comes to you at the end of the school year and says that the next year he would like you to implement a Flipped model.
    a. What would you say?
    b. How would you prepare?
    c. What resources would you think you would need?
5) Since our last meeting, have you experienced any changes in your thoughts about participating in or implementing a Flipped model? Why or why not?
6) A requirement of this class has been to visit a field site weekly, have you seen any instances where you feel a Flipped Model would benefit the student you are working with or aided you in helping the student? Why or why not?
7) Since our last meeting, have you done any further research into a Flipped Classroom? If so, what have you learned?

Questions Approved by IRB Board for Interview Three

For this final interview, participants were asked to read 4 short articles (showing both pro and con views) about the Flipped Classroom. They were attached in the email to the IRB for approval as well. The hope is that the articles will help foster a deeper conversation for final reflections. Articles can be found in the references section.

1. After reading the articles, did any of the pros line up with your own thoughts?
2. After reading the articles, did any of the cons line up with your own thoughts?
3. What were your major take-aways from reading the articles?
4. After reading about the pros and cons, do you have any to add to either list?
5. Where on the pro and con line do you lie?
6. Did one (or more) article(s) stick out to you? If so, which one(s) and why?
7. After a full semester of being in a Flipped Classroom and doing some reading on the subject, what can you tell me about a Flipped Classroom (repeat from interview #1)
8. After reading, did it cause you to go and read other articles or websites?
9. As you finished the semester, did you have any conversations about your flipped classroom? Either with classmates, family, or friends.
10. How do you think the Flipped Classroom would work in an Elementary School? Middle School? High School? College?
11. In your opinion, and after reading and experiencing a Flipped Model, do you think there is an optimal grade level for a Flipped Model? Why?
12. If someone were to come up to you and say, "What do you think about a Flipped Classroom?" How would you respond? If possible, rely on your experiences and the articles.
13. Hypothetical: You walk into your first day of classes (in college) and realize it is another Flipped Model,
    a. What would you do the same?
    b. What would you do different?
    c. What would your expectations be?
    d. Would you stay in the class? Why or why not?

APPENDIX E

EDP 370—APPLIED CHILD DEVELOPMENT

COURSE SYLLABUS AND SCHEDULE OF TOPICS

Course Syllabus: EDP 370 Applied Child Development (Fall 2013)

Elementary Education Program*[1] / Curriculum & Instruction
North Carolina State University

Instructor's Name: Dr. Heather A. Davis
Office Address: 602C Poe Hall
Telephone Number: (office) 919-515-0288
(cell) 919-824-1226 *best way to reach me
E-mail Address: Heather_Davis@ncsu.edu
Meeting Time/Place: Tuesdays 1:15PM - 4:00PM, 214 Poe Hall
Office Hours: I offer both live and virtual office hours through Blackboard Collaborate or by appointment. Please allow 24 hrs for scheduling appointments. There is a link at the top of our Moodle page that will take you directly to Collaborate. Wednesdays 1:00-3:30pm (Office Hours in Poe 602C) Thursdays 9:30pm-10:30pm (via Collabore)

B. Required Text: McDevitt, T. M., & Ormrod, J. E., *Fourth Edition* (2010). *Child development and education, Fourth Edition*.*** Upper Saddle River, NJ: Pearson. [Note a custom version of this text was created to lower the cost. It is available at the university bookstore. You may also purchase the third / fourth edition on-line or download an e-version of this text; however, some of the page numbers will be different. It would be your responsibility to reconcile the page numbers.]

C. Designation of Course. The overall purpose of this course is to learn how to *apply* developmental theory in order to become more effective classroom teachers. Taking a developmental perspective often involves learning to set aside our pre-determined agenda and to observe and listen to the children in our class in order to determine our next course of action. For this reason, developmental perspectives have often been dubbed child-centered/ student- centered perspectives.

Structure and Scope: This course is structured as five units. Our exploration of each unit is guided by a question that we seek to answer in our integrated field reports / reflective journals 1) *Role of Context & Culture: How does context shape development?* 2) *Developing a Student Identity: How is school a theater for identity?* 3) *Facilitating Understanding: How can we plan for conceptual change?* 4) *Planning and Modifying Instruction: What does it mean to provide developmentally appropriate instruction?* 5) *Managing Relationships: How can I helping children learn to manage their own behavior?* In structuring the readings and topics, we hope that you will come to see the importance of understanding children's developmental goals and limitations in shaping the quality of their motivation, learning, instruction, and evaluation.

" The subjects we teach are as large and complex as life so our knowledge of them is always flawed and partial." Parker J. Palmer, The Courage To Teach

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[1] The text covers prenatal through adolescent development. Though the course was designed

in conjunction with the ELEM Ed program, activities and reading can be modified to fit the needs of a variety of p-12 programs.

The field of child development, and the application of psychological theories to understanding student behavior and learning, is vast. Any course in applied psychological theory will struggle to find balance between the "breadth" of possible theories to cover and "depth," with regard to the complexity of application, of any individual theory. It is important to recognize that no single course in development can tell you EVERYTHING you need to know about did child development. Nor is it the purpose of this course to instruct you as to THE BEST way to teach ALL children or lay out an organized sequence of stages through which all "normal" children can be expected to pass at certain known ages. This is because no one, including leading researchers in the field of developmental psychology, agrees on a *single theory* of development or a *single method* to promote learning. In fact, many people suspect children develop and learn differently, particularly in different situations and when learning different subject matter.

There are many theories of cognitive development. In designing this course, I have chosen to focus on exploring the three dominant paradigms of cognitive development [Cognitive Science Perspectives, Individual Constructivist Perspectives (Piaget), and Social Constructivist Perspectives (Vygotsky)]. The decision to focus on these three paradigms reflect 1) the different worldviews concerning the nature of learning and development particularly with regard to the role of adults in promoting optimal development, 2) the current popularity of these views in the field, and 3) the relative emphasis of these theories in the professional teaching standards.

We will explore the complexity of these theories in-depth. We will develop your abilities, as professional educators, to 1) identify, describe, and communicate - using professional language – the characteristics of children's thinking in terms of their foundations in developmental theory and 2) *self-regulate* your own continuous learning of developmental theory. I believe it is *impossible* to memorize all of the information we will cover in this class in the time allotted. Because of this, I place a lot of responsibility ***on you*** to make priorities about which concepts are going to be the most useful for you in the future based on what you know about yourself, your future students, and the learning process. In order to be successful in our classroom activities and evaluations you must make choices about where you want to develop your expertise. This means that you will frequently be asked to *select* a developmental lens to understand the observations you make and data you collect at your field site. While I will provide you with some guidance and structure for making your choices, you will ultimately need to monitor your own comprehension, engagement, and mastery of each unit we cover. I hope that throughout this course, the process of discovering theories of development and analyzing your own experiences and your observations of the children you work with will provide you with an invaluable foundation from which you may base decisions in your classroom.

D. Student Outcomes: By the end of the course students will:

- Understand the role of culture in mediating developmental processes [NCPTS II, L4S8].
- Understand the outcomes of interest to developmental psychologists [NCPTS IV, L4S5678].
- Understand the ways in which developmental differences impact *every* aspect of the teaching task including planning, instruction and classroom management [NCPTS IV,LS8].
- Understand how to use developmental theory to assess and comprehend children's thinking and behavior [NCPTS IV, L1S589].
- Understand some of the characteristics of early and middle childhood and identify developmental differences within same-age children [NCPTS IV, L1S8].
- Reflect on teacher-child relationship dynamics and the meaning of conflict in relationships with young children [NCPTS II, L4S678].
- Create modifications that 'titrate' (Rohrkempter & Corno, 1988) challenge for students [NCPTS IV, L1S79].

In addition to assisting students in developing competencies outlined in the College of Education's Conceptual Framework, this course will also assist students in mastering several of the **North Carolina Professional Teaching Standards** (http://www.ncpublicschools.org) including, but not limited to:

NCSU College of Education Conceptual Framework:
http://ced.nesu.edu/about/conceptual_framework.htm

Conceptual Framework for Developing Professional Educators Who

Lead and Serve: The College of Education is a voice of innovation for learning across the life span. We prepare professionals who educate and lead. Our inquiry and practice reflect integrity, a commitment to social justice, and the value of diversity in a global community. **Lead** elements focus on the four forms of knowledge: general pedagogy, content-specific pedagogical strategies, content or discipline knowledge and knowledge of the content of education, including foundations, historical perspectives and school settings. The conceptual framework for our programs for professional educators is the touchstone to assure that all who complete the programs:

1. **L**earn general pedagogy
2. **E**ducate with content specific strategies
3. **A**pply discipline / content specific knowledge
4. **D**emonstrate understanding of the education context

Serve elements show the range of dispositions being developed in candidates. All who complete our programs serve the profession by being:

5. **S**cholarly knowledge base to guide educational decisions
6. **E**thical disposition for behaving with respect, integrity, and personal responsibility
7. **R**eflective and self-evaluative
8. **V**alue diversity with sensitivity to cultural, economic, developmental, ethnic, racial, gender, religious, and sexual orientation differences

9. **E**xperienced in practical applications of knowledge

*** STANDARD IV:** Teachers facilitate learning for their students. Including understanding the nature of qualitative differences in children's thinking:

- Know how students think and learn.
- Understand the influences on student learning and differentiate instruction
- Keep abreast of evolving research
- Adapt resources to address the strengths and weaknesses of students helping students to develop higher-order thinking skills:
- Encourage students to ask questions, think creatively, develop and test innovative ideas, synthesize knowledge and draw conclusions
- Help students exercise and communicate sound reasoning; understand connections; make complex choices; and frame, analyze, and solve problems and use a variety of methods to assess what each student has learned.

*** STANDARD II:** Teachers establish a respectful environment for a diverse population of students. This includes embracing diversity

- Select materials and develop lessons that counteract stereotypes and incorporate contributions.
- Recognize the influences on a child's development, personality, and performance
- Consider and incorporate different points of view and treating students as individuals:
- Maintain high expectations for all students
- Appreciate differences and value contributions by building positive, appropriate relationships.

E. Expectations and Evaluations:

"A community of truth demands continual discernment: some observations are accurate and some are not, some claims of fact are valid and others are not, some hypotheses are warranted and others are not." Parker J. Palmer, The Courage to Teach

You will be doing a number of different activities and assignments during this course. However, the most important activity you will do in this class is to *question* your own educational experiences, your observations throughout the semester, and think about how the theories we read can be used to understand how children think, learn, and relate. As we move through the course, your role will be to try to understand what you hear and read, to ask questions, to agree or disagree, and to connect what you read with your own experiences.

*** Class Routine:** *In this class we share the responsibility for managing the activities, equipment, and routines.* In our class we have 25 leadership roles, designed around classroom tasks, for which we will collectively share responsibility (see descriptions on MOODLE site). Leadership roles will rotate three / four times throughout the semester so that *each* student has an opportunity to serve as a group moderator and scribe. A general routine for our class will be to divide our time into *three* segments: discussion of readings /

reciprocal teaching in small groups (45 minutes); sharing observation data and preparation of field reports (45 minutes); class wrap- up and large group discussion (45 minutes).

This class will be taught in a 1:1 'laptop' format. Each student will be assigned an iPad for use throughout the term. You are expected to bring your *charged* iPad to each class and to your field site. Readings may be downloaded to your iPad in lieu of printing them out. *If you do not have wireless access at home/ in your dorm, download the readings to your iPad before leaving class.* If you have easy access to wireless internet in your home/dorm, you may also want to consider an electronic version of the text.

We will explore a variety of software applications throughout this course. Some of the software you will *learn* how to use in the course will include collaborative white-boarding, mind mapping, off-line forms through Google FORMS, audience response, annotating .pdfs / notes in addition to Apps we provide for interacting with children at your field site. However, I expect you to *already* be familiar and able to uses several programs: your NCSU e-mail (including sending attachments in a rich text (.rtf) format), Google (docs, calendar), MOODLE (downloading readings, posting to the discussion board, replying to the discussion board, participating in a WiKi, uploading assignments), PowerPoint (or similar presentation software), .pdf reader, word processing software. If you do not feel confident that you know how to use these programs, please 1) complete the on-line MOODLE tutorial and 2) visit the Poe 400 Learning Research Center for assistance.

We hope you will come to view the other students in this class and myself as a community of learners. As a community, it is important to engage in a sharing of thoughts and ideas and responsibilities. This can be risky, for we all fear the repercussions of others' evaluations of our thoughts. It may help to know that we do **NOT** expect you to necessarily agree with us, your classmates, or with the theories we read. But, we do expect you to participate throughout the year. This means regular attendance in class and involvement in class discussions is a requirement for successful completion of the course. Specifically, course requirements include:

*** Completion of Assigned Reading:** The reading schedule and the specific readings that supplement the text are *rigorous*. Based on the structure of prerequisites for the Elementary Education Program, I assume most students come to this class with some familiarity for many of our theories. It is my goal to expand upon your current knowledge of developmental theory, to develop your proficiency in applying developmental theory to understand classroom interactions, and to develop your ability to solve classroom problems based on scientific knowledge about child development and learning. Our time in class is limited and, as such, we will use class time to develop "depth" of understanding. Readings will be used to develop your appreciation of the "breadth" of each theory in its full complexity. Therefore, it is necessary to complete ***all*** required readings. A list of topics and required readings are attached to the syllabus. While I reserve the right to review theories in class, the majority of our time will be spent doing application activities. I frequently use formative evaluation

techniques such as "quick writes," journals, and collecting group synthesis of case study applications to assess your mastery of concepts. However, I also invite and rely on you to ask questions when you are confused. To do this, all readings must be completed prior to class so that you may be prepared for our discussions.

To help you navigate through the readings use these guidelines / suggestions:

- We have selected the leading text in applied development for this course. Chapters in these texts are written for a broad audience - and will, therefore, serve as our primary touchstone for understanding the fundamentals of child development. In reading the texts, you should be focused on refreshing your memory and checking your understanding of each theory. We will always be building onto, rather than reviewing, what you have read. Bring questions or concerns to class. I recommend reading the text chapters FIRST.
- Supplemental, required readings are posted on our MOODLE website and uploaded ot our DROPBOX account. The log in for the Dropbox account is located on the Moodle Announcements. In addition to connecting you iPad to the Dropbox account, you can also download articles/chapters to your personal computer. These articles represent more advanced readings. They have been chosen to complement classroom activities. Many of them are *intellectually challenging*. If you find you are struggling to understand the theories or the readings, even after they have been discussed in class, please come by office hours or make an appointment to see me.
    - o On our list of topics and readings, several supplemental readings are listed. You are not expected to read all of the articles. Instead, we use a jigsaw method to divide the readings amongst the students in the class. ***Students, then, assume responsibility for teaching each other the content in the class.***
    - o Monitor and manage your frustrations with the readings early – as the readings increase in their quantity and complexity as we move through the quarter. All supplementary articles are in .pdf format. Some articles are chapters from other texts that were scanned. Scanned chapters will have very large file sizes and may take time to download. I will not require you to print out and bring the articles to class (in other words, you may choose to read them off the computer screen); however, if you do read from your computer, please be sure to take notes and bring them to class to facilitate your participation in our discussions.
    - o General questions to guide readings of the articles:
        - §§ How does this article/chapter relate to the unit we are covering?
        - §§ Take Notes: Highlight main ideas (concepts / definitions) the author is introducing. After reading the article, reflect: Why are these ideas important? Which are the 'most critical'?
        - §§ Take Notes: Highlight the statements that stand out to you as 'critical' or 'controversial.' Which statements do you want to discuss with your group? How did you respond to these statements?

*** Graded Evaluations:** Your mastery of developmental theory and the skills used to apply

developmental theory to understand children's thinking will be evaluated several times throughout the course of the semester:

Assessment	**Contribution / Points**
(5) Integrated Field Reports / Reflections (25 pts. each)	30% (125 Points)
(4) Service in the Field/ Data Collection (21 pts. each)	20% (84 Points)
(1) Children's Thinking Project	50% (211 points)
Professionalism (*assumed*)	deduct 5-10 pts. per incident)

*** Formative Assessments**: **Field Experience, Integrated Field Reports/Reflections, & Building Relationships through Data Collection** [50%, 210 points]: The purpose of formative assessments are for you to 1) practice seeing the work of teaching from a developmental perspective, 2) to practice the skills of assessing developmental characteristics, and 3) to receive regular feedback on your emerging ability to apply constructs from developmental psychology to understand children's thinking. In order to accomplish these tasks we will be collecting assessment data, conducting observations, and analyzing lesson plans relevant to your field site. At your field site you will work in teams to collect data from children (both required assessments and optional assessments) that can be used to construct field reports and support your final project.
12 Hour Field Experience: As part of this course we have several "texts." One type of text is the formal textbook that we will read as a guide for understanding developmental theory. Another type of text that we will read are journal articles/ book chapters that will contextualize how we think about developmental psychology in terms of the work we do with children in schools and with schools in our community. The third *and equally important* text that we will 'read' is a community experience where we observe children and allow *them to teach us*, first hand, about their own development. As part of this course you are expected to complete 12 hours of service as a mentor to a student. This does *not* include travel to and from the field site.

There are three potential field sites for you to complete your 12-hour field experience: Our primary partner for the course is Step-Up Urban Ministries Children's Program (http://step-up.us/). Step-Up meets each Tuesday evening from 6-8:15pm. Students will be divided into two groups and would alternate for a bi-monthly commitment). Step-Up has a rotating schedule of adult volunteers from the junior league who assist with their programming. Because of the low adult-child ratio and because interns only attend Step-Up *six* times throughout the term, interns who attend this site need to be outgoing and *make the effort* to introduce and avail themselves to the children and adolescents. Step-Up meets at White Memorial Church off Oberlin Rd. We can arrange transportation for this site.

We also partner with the St. Giles / YMCA Community Hope program. This program serves elementary and middle grades children living in the Raleigh Gardens Public Housing Community. The K-5 grade program is held at Providence Baptist Church on M/W with two

sessions from 4:30-5:30pm and 5:30-6:30pm. The program has a strong literacy emphasis. The 6-8th grade enrichment program is held at St. Giles Church on TU/TH from 4:30-5:30pm. This program has a strong career and cultural exploration emphasis. Both programs have a strong curricular focus and carefully plan activities for 1:1 mentoring. Both churches are located off Glenwood / 70 past Crabtree valley Mall. NCSU students who choose one of these placements as their field site will be asked to pick one day a week to ***regularly*** make a 1-hr commitment to serve as a substitute mentor / co-mentor. Students who attend select this field site must also complete a 1hr training with the YMCA Community Hope director.

Our third partner is with PreEminent Charter School in Southeast Raleigh (K-2 Team). Students who chose this field site would make a 1-hr weekly tutoring commitment. NCSU students who choose this field site will work 1:1 or with students in small groups. Teachers often rely on interns to identify academic enrichment activities for working with students. Interns who attend PreEminent must commit themselves to contacting their teacher 48 hrs prior to each visit to plan for their time. I reserve placements at PreEminent for NCSU students who cannot commit to either of the afterschool / evening field sites because of their class schedule. If you request placement at PreEminent, you may be asked to submit documentation of conflict with an afterschool/evening placement.

As a student in a professional school I expect students will 1) arrange their schedule to accommodate *regular* attendance at the field site, 2) behave in a professional manner that exemplifies the College of Education's mission to Lead and Serve, and 3) promptly contact both myself and site supervisors in the event that you are unable to meet your commitment.
*** Building Relationships Through Systematic Observation and Data Collection:** Four times during your field experiences, you will be asked to collect observation / survey data. Collecting systematic survey / observation data serves three purposes in this class:

- The surveys selected for use in this class were designed by researchers to reflect underlying developmental theories. By reviewing each survey (prior to asking students to complete it) you are developing your understanding of how researchers operationalize developmental concepts to study them in child populations. Operationalize involves creating a definition for a 'fuzzy' concept in a way that allows researchers to identify characteristics to observe and questions to ask.
- Because the surveys provide us with questions / characteristics to observe, we can use them to build deeper, meaningful relationships with the children at our field site. At the end of Unit 1 we will all read Jablom et al. (1999) Chapter 2: Using Observation data to build relationships. Children and adolescents at field sites ***SHOULD NOT*** complete the surveys independently. Instead, you need to work with the students to complete each survey, asking them follow-up questions, sharing your experiences and reactions and using the surveys / observations to get to know the children better.
- Because multiple children will be asked to complete the surveys, we can use survey data as a way to compare children's responses across field sites (for boys and girls etc.). Most new teachers have had limited experiences with children; they may have babysat or have siblings and cousins. However, these limited experiences often contribute to

biases in our judgments of what is ‘reasonable’ or ‘typical’ to expect. Comparative / aggregate data contributes to our ability to become more ‘calibrated’ with what is developmentally appropriate (i.e. reasonable, typical etc.).

The type of data you collect is designed to align with the Unit we are currently studying and to be appropriate for the age group you are working with. This means that students in the class will be collecting and analyzing different types of data simultaneously. The specific surveys you will be asked to collect are listed on the *Expectations* sheet for your field site. Students are *required* to collect survey data for one child per unit. However, students are *encouraged* to try to collect survey data for two children per unit.

*** Integrated Field Reports & Reflections:** The purpose of the integrated field observation/ reflections are to provide an opportunity for you to 1) practice seeing developmental concepts 'in action', 2) to practice the skills of assessing developmental characteristics, and 3) to receive regular feedback on your emerging ability to apply constructs from developmental psychology
to understand children’s thinking. In order to accomplish these tasks you will be collecting assessment data, conducting observations, and analyzing lesson plans relevant to your field site. At your field site you will work in teams to collect data from children (both required assessments and optional assessments) that can be used to construct field reports. In each field report, you are *required to use pseudonyms* when describing a child/adolescent's talk / behavior. Field reports / reflections will be evaluated to the extent that they exemplify the characteristics of *productive reflection* (E. Davis, 2006; see reflection guidelines posted on MOODLE). Students are strongly *encouraged* to integrate the data they collected from their surveys / structured observations at their field site. However, students are *not required* to use structured data.

*** Summative Assessment: Children’s Thinking Project** [50%, 210 points]: The purpose of this project is to encourage you to 1) extend your thinking and learning of development beyond the walls of our classroom, 2) conduct a project that will allow you an opportunity to develop expertise in data analysis and the application constructs from this course, and 3) gain a deeper understanding of child’s perspectives in an area of your interest. This is a comprehensive project that involves a large investment of time.
For this project you will conduct, transcribe, and analyze data from observations of and an interview with a child. The interview can be on a topic of your choice; however the topic must be approved by your field site supervisor and should be of interest to the child you are interviewing (see sample interview topics and questions posted on the FAQ link in MOODLE). The purpose of your observations throughout the term and Field Report 5 is to understand the child’s developmental characteristics. The purpose of the interview is to use this knowledge and developmental theory understand how the child “sees” the topic you choose.

Because this is such a comprehensive project, it will be completed in several stages in which

you must first submit your ideas for preliminary approval. This ***includes submitting a plan for selecting the child you will interview, your selection of topic, the garnering of consent (from the child and his/her parent), and the interview questions you plan to ask.*** Regarding the observation project this includes a plan for locating and gaining access to the field site where you plan to observe, your selection of topic for a focused observation, the garnering of consent from people at the field site, and your plan for taking observation notes (e.g. what will be your research question, how will you allocate your attention). Exemplary papers are posted on our MOODLE course. Please consult these papers along with the guidelines and scoring rubric.

*** Professionalism.** Candidates in the NCSU Elementary Education Program are part of a community of pre-service educators who LEAD and SERVE in both the university setting and in the public schools. Candidates are no longer traditional college students and therefore are *expected to exhibit professional behavior*, which will lead to preparation for employment. The three pillars of the any profession serving child clients include: preparation/evaluation, delivery of quality of service, and collaboration with colleagues. The content of our course will help you with the first two pillars; however, I also want to build into our class a culture of professionalism that gets to the heart of quality service delivery. The elements of delivery I am most interested in both modeling and helping you develop are: 1) continuous self improvement, 2) presentation of a "professional" attitude and identity, 3) collective identity and responsibility to the classroom community, and 4) the ability to work collaboratively with your peers to produce collective work and to solve classroom problems.

I assume that you will act in a professional manner. This includes regular attendance, adequate preparation (i.e. completion of readings), and active participation in class. Homework assignments are designed to assist you in preparing for our classes. The quality of our class time together, and of your experiences working with group members is dependent on your preparation. *I expect you to attempt each assignment and I reserve the right to spontaneously collect assignments in the event that I need feedback on the class' progress through the material.* Each incidence of unexcused absences, tardiness, inappropriate attire, distractions because of cellular phones, social networking, games, or competing "activities" (e.g. completing work for another course) are not professional, would be frowned upon by supervisors and/or the parents/guardians of your students. Likewise, throughout the semester we will do in-class group activities. These activities are designed to develop your ability to work collaboratively and to solve problems (both the actual case studies we complete as well as negotiating the different working preferences of group members) with the peers in your class. For this reason unprofessional behavior may result in a 5 - 10 point detraction per incident from your total grade.

****** Field Supervisors and will complete an evaluation of your professionalism and service at the end of the term. Poor evaluations at the field site can result in deductions for Professionalism.***

H. Grade allotments: The standard NCSU plus/minus grading system will be followed. All

work should be double-spaced and follow APA style. Be sure to proofread for grammar, punctuation, and spelling as well as complete content. Grades will be assigned as follows:

Letter Grade	Points needed	What this grade means
A+	97 percent	Demonstrated the highest level of mastery of concepts, including the ability to apply many of these concepts to real situations.
A	93 percent	
A-	90 percent	
B+	87 percent	Demonstrated mastery and ability to apply at least some of these concepts to real situations
B	83 percent	
B-	80 percent	
C+	77 percent	Demonstrated mastery of basic concepts
C	73 percent	
C-	70 percent	
D+	67 percent	Demonstrated minimal mastery of topics
D	63 percent	
D-	60 percent	
F	< 60 percent	Failed to demonstrate mastery of any topics

I . Instructor's policies on incomplete grades and late assignments. Grades will be reduced for late work by 10% per day without an excused absence. Please see Academic Regulations for types of situations considered legitimate (http://www.ncsu.edu/policies/academic_affairs/pols_re gs/REG205.00.4.php). With an excused absence, late work may be made up with no late penalty. Late assignments should be made up *within 48 hours* after returning to class. For more information, please see Academic Regulations http://www.ncsu.edu/policies/academic_affairs/po ls_regs/REG205.00.13.php. An incomplete (IN) grade will be given for incomplete assignments that result from a serious interruption in work not caused by a student's own negligence. Any IN grade not removed by the end of the next regular semester in which the student is enrolled will automatically become an F grade.

J. Attendance Policy: Professional behavior includes attendance at all classes and internship sessions. If candidates will miss class, they should call the instructor's mobile voicemail and leave a message indicating a reason for the absence and a phone number where they can be reached. ***** Students must also contact the supervisor at their field site and arrange to make up time lost.** Please read the university policy related to grading practices found at http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.3.php .

Because this course meets only once a week, missing one class without making-up the work completed on time means you will miss approximately 10% of the time given to the course. Because attendance in class is required for learning how to teach, we cannot allow students to complete a course if they have missed more than three sessions (32%), regardless of whether the absences are excused or whether the student completed the make-up assignments. ***The student must take an incomplete and repeat the class before passing.***

Any incomplete grade not removed by the end of the next regular semester in which the student is enrolled or by the end of twelve months, whichever is shorter, or by the extended deadline authorized by the instructor or department offering the course and recorded by the Department of Registration and Records, will automatically become an F grade and will count as a course attempted.

K. Academic Integrity. Students are bound by the academic integrity policy as stated in the code of student conduct. Therefore, students are required to uphold the university pledge of honor and exercise honesty in completing any assignment. See the website for a full explanation:
http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php

L. Support for Students with Disabilities. Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. http://www.ncsu.edu/provost/offices/affirm_action/dss/. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php.

M. Statement of Transportation: This course has a field-experience component associated with it. Students are expected to provide ***their own*** transportation to and from school-based experienced in partnership schools. Consideration will be given in selecting sites that are close to campus so that bus transportation is available. Students are encouraged to carpool with peers in their cohort so that parking is not an issue at the elementary school site.

N. Honor Pledge: Please type the honor pledge at the bottom of all field reports and the Children's Thinking Project: "I have neither given nor received *unauthorized* aid on this assignment. The words I have used in this assignment are my own – they have not been lifted from a website or our readings. I have may every attempt to properly acknowledge ideas that were not my own."

EDP 370 (F2013) Schedule of Topics

Session 1	August 26	Introduction to Course Intro Unit 1: Role of Culture and Context in Development Meet Field Partners

No Class September 4: Observance of Labor Day Holiday

Session 2	September 9	Unit 1: Classroom as a Microculture *(Field Placements Begin)*
Session 3	September 16	Unit 1: Family, School, Peers as Meso-Culture
Session 4	September 23	Unit 1: Poverty as Macroculture Wrap-Up Unit 1 **Field Report 1 Due by 10/1 (Posted on Moodle)**
Session 5	September 30	Unit 2: Identity Construction as an Individual Process
Session 6	October 7	Unit 2: Identity Construction as a Group Process
Session 7	October 14	Unit 2: Identity Construction as a Cultural Process Wrap-Up Unit 2 **Field Report 2 Due by 10/22 (Posted to Moodle)**
Session 8	October 21	Unit 3: What is a Concept? (Applying Schema Theory)
Session 9	October 28	Unit 3: What Does it Mean to be an Adaptive Teacher/Learner?
Session 10	November 4	Unit 3: What Does it Mean to be Self-Regulated? Wrap-Up Unit 3 **Field Report 3 Due by 11/12 (Posted to Moodle)**
Session 11	November 11	Unit 4: Piaget's Perspective on Qualitative Differences in Thinking Mouse-Trap Car Activity
Session 12	November 18	Unit 4: MTC Activity Revisted Apply Piaget's Theory to Jasmine Case Prepare for Jigsaw
Session 13	November 25	Jigsaw on Vygotsky's Theory Wrap-Up Unit 4 Field Report 4 Due by 12/3 (Posted to Moodle)
Session 14	December 2	Jigsaw: Developmental Perspectives on Motivation & Classroom management

Final Paper Workshop: December 6 (Time and Place TBD)

Field Report 5 & Final Children's Thinking Paper Due 12/16*

*Graduating seniors will need to make arrangements with me to submit their paper earlier to meet graduation deadline.