FLIPPED LEARNING INSTRUCTIONAL MODEL: PERCEPTIONS OF VIDEO DELIVERY TO SUPPORT ENGAGEMENT IN EIGHTH GRADE MATH

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FLIPPED LEARNING INSTRUCTIONAL MODEL: PERCEPTIONS OF VIDEO DELIVERY TO SUPPORT ENGAGEMENT IN EIGHTH GRADE MATH
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ABSTRACT

FLIPPED LEARNING INSTRUCTIONAL MODEL: PERCEPTIONS OF VIDEO DELIVERY TO SUPPORT ENGAGEMENT IN EIGHTH GRADE MATH

by

Keely Coufal

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. The following research questions were asked in this study:

What technologies support video delivery to engage students in a flipped learning instructional model? What are the benefits to using video delivery to support student engagement in an eighth grade math flipped learning instructional model? What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Twenty participants were interviewed among five different focus groups. Fifteen eighth grade math students, three teachers, and two administrators were included in the interviews. Data was collected from the audio transcription of all the interviews and was analyzed for thematic clusters of meaning. Findings from this data suggested that student engagement was significantly higher when being taught from the flipped learning instructional model. Implications for practice would suggest educators acquire a deeper understanding and implementation of flipped learning.
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Chapter I

Introduction to the Study

The introduction of 21st century learning through technology presented opportunities to increase student engagement and effectiveness, particularly in math and science, while developing new pathways of instruction (Flumerfelt & Green, 2013). In fact, Wilmarth (2010) noted that as emerging models of instruction moved towards the implementation of more technologically interactive lessons, responsible educators continued to explore how best to engage students. Furthermore, he emphasized the changing role of educators required not only investigating what are the most engaging and effective technology trends, but that it was imperative educators better understand how today’s students learn.

One innovative method of utilizing technology to support student engagement has been the flipped learning model (Bergmann & Sams, 2012; Hamdan, McKnight & McKnight, 2013). According to Bergmann and Sams (2012), this method of teaching places much of the direct instruction into the hands of students. Rather than listening to teachers deliver lectures and content in the classroom, students view media content, such as video recordings created by teachers, outside of the classroom. Thus, the flipped learning model changes or flips the instructional delivery approach. This model, designed to be student focused, has allowed more time to construct greater meaning and an in-depth learning experience in class (Hamdan et al., 2013). This chapter will present the background, problem statement, a theoretical framework, statement of the purpose and research questions, rationale/significance of the study, the significance of leadership, assumptions, and limitations/delimitations, definitions of terms, and summary.
Background

Trends in International Math and Science Studies (TIMSS) (2011) reported that United States ranked ninth among fifty six countries in eighth grade math scores. Countries that scored higher on the TIMSS math assessment included Korea, Singapore, Chinese Taipei, Hong Kong-CHN, Japan, the Russian Federation, Canada, Israel, and Finland (National Center for Education Statistics, 2011). Compared to the previous administration of the TIMSS eighth grade math assessment in 2007 with the 2011 test showed no measurable gains among the U.S. average eighth mathematic scores. To add to the challenge of teaching students who are behind the international standards, Goldberger and Bayerl (2008) noted the current high-stakes testing focus has widened the performance gap among economically disadvantaged and diverse populations of students. Chait, Goldware, Housman, and Muller (2007), shared that current math results in particular, have presented serious concerns about student abilities, as they progress into the secondary math courses. These researchers found that the level of complexity and steps needed to master concepts have increased in rigor and difficulty. Consequently, many students have exhibited lower math achievement scores (Chait, Goldware, Housman, and Muller, 2007).

A potential key to bridging the gap in acquiring the mathematical skills needed for the 21st century learner was the development of technology based methods instruction that includes student engagement, collaboration and active learning (Silk, Higashi, Shoop & Schunn, 2010). The flipped learning model was designed to personalize learning while increasing opportunities for more in-depth and individualized engagement with both the teacher and peers (Hamdan et al., 2013). Student learning through a varied
means of active and collaborative activities has shown to improve student attitudes, critical thinking and levels of engagement (O’Dowd & Aguilar-Roca, 2009). The relationship between collaborative and active learning for students and the flipped learning model was founded in the time-shift of direct instruction, allowing in-depth learning to be actualized in the classroom (Bennet et al., 2012). Driscoll (2012) also found promising results in his research of flipped learning, emphasizing that shifting instruction time outside of the classroom offered a new learning environment that fostered problem solving and critical thinking opportunities in the class.

Hamden et al., (2013) pointed out that research is still limited, both for quantitative and qualitative studies in the field of flipped lessons. However there is evidence in research that supports key aspects of the flipped learning model, such as student-centered learning and more opportunities for one-on-one interactions with teachers. The flipped model has been considered by some researchers as a pivotal game changer for not only the role of teachers, but for students as well (Bergmann & Sams, 2012). The phenomenon of shifting direct instruction into the hands of students while providing guidance and facilitation by teachers, as well as collaboration with peers has redefined the framework of education (Gorman, 2013). As researchers search for more effective ways to help students learn higher levels of mathematics, there is a need to further explore new paradigms of instruction such as the flipped learning model as one possible strategy to increase student success (Hamden et al., 2013; Bergmann & Sams, 2012; Gorman, 2013).
Problem Statement

As the revolution of modern technology continued to transform society, it conditioned and restructured the landscape of education, erasing the hallmarks of a learning institution created one hundred years ago (Bartolini Bussi & Borba, 2010). These changes availed teachers a plethora of new media devices, software applications, and unlimited Internet resources that research has shown to be a benefit for student learning (Cheung & Slavin, 2011; Ertmer & Ottenbreit-Leftwich, 2010; U.S. Department of Education Office of Educational Technology, 2010). Yet, with all of the technological opportunities available to educators there still remained a disparity among teachers between the proficiency level and practice of technology usage both in and out of the classrooms (Ertmer & Ottenbreit-Leftwich, 2010). These limitations of educational technology usage among teachers suggested that more research is needed to learn about technology applications that are easily understood, efficient, effective, and can be adapted to an individualized learning environment, such as the described flipped learning model.

Another area of technology usage in education in which research would be valuable is to find more engaging methods to teach students in mathematics (Bartolini Bussi & Borba, 2010). In addition to investigating ways that educators could better use technology in their classrooms, exploring ways to increase student engagement, particularly in math may be beneficial. The fact that significant learning gaps exist between low socio-economic and middle class students, particularly in mathematics and science, presents a need for further research into incorporating technology into mathematics (Department of Education Office of Educational Technology, 2010). The research of Epson et al., (2010), indicated that according to the National Assessment of
Educational Progress 2006 report only 13% of students described as Black or At-Risk scored proficient or above in 8th grade math skills. Furthermore, the data noted Hispanic students have achieved slightly better with 19% performing at proficient or above. In a more recent report, Nichols, Glass & Berliner, (2012) cited that the latest data from the National Center for Education Statistics (2011) indicated that all subgroup averages did not meet the level of proficiency as provided by NAEP. In this same article it stated that African American students were the lowest performing group in 8th grade math.

While there have been considerable gains in student performance in math according to the NAEP report, there is still a significant disparity in the areas of at-risk and minority students. Epson et al., (2010) determined that with a highly structured integration of technology in math, along with effective teacher training and support, positive results in student achievement are possible. Jim Kaput and fellow researchers explored the varied usage of digital technologies in relation to teaching mathematics, contending that such methods will evolve and improve cognitive processing for students (Moreno-Armella, Hegedus, & Kaput, 2008). Bergmann & Sams (2012) articulated that math classes, in particular, are opening up to higher levels of computational thinking and inquiry when using the flipped learning model. Given these points, the expansion of research, based on technology usage in math education is important. Moreover, research about the flipped learning model and its potential for student engagement, may serve to add to the dialogue regarding this new model of instruction.

**Theoretical Framework**

Davis (2013) described the flipped learning model as inverted learning, based on a constructivist framework that is student centered in which students are the primary
agents of their own progress. Students instructed via flipped lessons learn content and skills outside of the traditional classroom, by viewing recorded lessons of their instructors or other video resources assigned by their teacher (Finkel, 2012; Hamdan et al, 2013). Berrett (2012) illustrated that in the classroom; students take what they learned from the video and apply it in a variety of interactive problem solving tasks. These activities include collaborating with peers and participating in active learning, enabling them to construct meaning in their lessons. Furthermore, this type of learning can give students the opportunity to seek clarification and provide more in-depth discussions with their teacher (Finkel, 2012). Because much of the initial instruction time has been allocated as student independent time, the flipped learning model may free up classroom instruction to serve as the application of learning time (Berrett, 2012; Finkel, 2012; Hamdan et al., 2013).

Finkel (2012) also pointed out that flipped learning is a method of teaching which supports students who need reinforced instruction for recollection of knowledge and content. He indicated such videos provided students with unlimited viewing of instruction so that the student can learn at their own pace, and not get left behind as in a traditional lecture style instruction. Such approaches also help students who are English language learners (ELL) (Hamdan et al., 2013). In fact, Hamdan et al., (2013) noted that these students must first process the basic level of understanding before engaging in critical thinking. Consequentially, ELLs have difficulty completing higher level complex activities and quicker paced lessons. According to Bergmann and Sams (2012), with flipped learning, students can fortify their learning through the ability to slow down
instruction allowing for the necessary processing time. Thus, the flipped learning approach may have merit as an instructional approach for ELLs.

In short, Bennet et al. (2012) illustrated that the term flipped learning is best considered as a means to transfer the responsibility of learning from teachers to students. They emphasized that when students control both the pace and environment of the delivery of instruction, the transfer of ownership belongs to the student. Early proponents of the flipped learning model, Bergmann and Sams (2012), stressed that flipping a classroom was not meant to be viewed as a silver bullet for all instructional challenges, but as an opportunity to increase active student learning while supporting both mastery and struggling learners.

**Statement of the Purpose and Research Questions**

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. This research explored the phenomenon of individuals who had lived experiences participating in flipped classes to observe and elicit impressions and consensus about their experiences. Through the use of open ended interview questions directed towards teachers, administrators and students the following questions guided this study.

1. What technologies support video delivery to engage students in a flipped learning instructional model?
2. What are the benefits to using video delivery to support student engagement in an eighth grade math flipped learning instructional model?
3. What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

4. What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

Rationale and Significance of the Study

As technology continues to influence the way students learn and how educators teach, such fundamental changes solicit a need to inquire from students and educators their opinions about the shift from a traditional instruction environment to one encompassing interactive, technology driven learning activities (Speak Up National Research Project & K-12, 2013; Flipped Learning Network, 2012). Moreover, the Speak Up National Research Project (2013) and the Flipped Learning Network (2012) recognized that in order for technology usage within education to be effective it was vital that the primary stakeholders of this process, such as, students and educators, have an influential role in providing critical feedback to the developers of this shift in strategic instruction. Because the flipped learning model changed the paradigm of the traditional framework of instruction, there is value in learning from teachers and students how this use of technology has influenced the process of learning. In addition, a recent report from the National Survey of Science and Mathematics Education (2013) indicated the role of teachers providing input regarding student instruction is vital because they are the best sources to understand their students’ needs.

The Significance of Leadership

Most transformative measures to improve education are led by what, Fullan (2007) described as administrators who are the primary influencers for innovative
change. Such educational leadership transforms its followers by providing individual support through mentoring and coaching (Bass & Steidlmeier, 1999). Northouse (2010) indicated that a transformational leader is one who motivates those who follow to be visionaries and to promote key players who will be agents for such change. Leaders in education must be accountable in the usage of data for targeting improvement, maintaining the integrity of authentic learning, while embracing the possibilities that technology is affording students (Fullan, 2007). Part of this goal is to ensure research has been firmly rooted in the early stages of adopting new technology methods into the classrooms (Serim, 2012; U.S. Department of Education Office of Educational Technology, 2010). Webb (2011) stressed that school administrators have a critical role through their supervision of teachers, to monitor best practice methods of instruction and curriculum, including the integration of technology.

In addition, leadership must also provide emotional support along with effective staff development training to assist teachers as they journey into this new phase of education (Ertmer, & Ottenbreit-Leftwich, 2010; Hamdan et al., 2013). Furthermore, Hamdan et al., (2013) described the importance of administrators learning alongside teachers to become more proficient and knowledgeable in all areas of educational technological applications. Northouse (2010) illustrated that authentic leadership is someone who relates to those who follow with genuine conviction and has a strong belief in the goals and desires for action, so must an administrator who is expected to garner support not only from teachers, but parents and communities. Leaders promoting new technology must have a full understanding of why it is important and to have research driven discussions with all members of the learning community in order to be effective.
Assumptions

For this research, all participants who answered the interview questions proposed to them in this study did so with truthfulness and sincerity. The questions developed for this research were designed to solicit authentic and meaningful responses from the participants that would effectively describe their own experiences with flipped learning. The researcher used the interview process to interpret the participants’ responses as a common shared experience with transparency and fidelity, in order to establish certain themes among the participants.

The following assumptions were made in this research:

- Written permission and consent was given by all participants who were interviewed, including parents of students who participated.
- The name of participants, school and district were all kept confidential in this research and all participants were kept anonymous and privacy was protected. Pseudonyms were created to protect the identity of all participants.
- Participants were not influenced in any way with regards to their interview and answered questions honestly.
- The researcher implemented all aspects of this study objectively and factually.
- Data presented about campus demographics were accurate and current based on the most recent AEIS report.

Limitations and Delimitations

While every effort was made to ensure a thorough qualitative study during this research, there were a few limitations that need to be discussed. First, the duration of the implementation of the flipped learning model was limited to only three months, and this
research would have benefited if there had been more time to allow students to become acclimated to learning through the flipped model. Secondly, the effect of student learning from digital media may be perceived as a novel experience and possibly influenced student responses during their interviews. Third, the balance of experience among the three teachers participating was unequal because one of the teachers was a first year teacher and her limited experience may have affected her implementation of the flipped learning model. Last of all, the participating students were considered students of diverse backgrounds, including low socio-economic status and bilingual abilities, which may have influenced their perceptions of the flipped model. Thus, the student sample may not fully be representative of a general population.

This research study was designed to understand perceptions and thoughts of administrators, students and their teachers as they participated in the implementation of the flipped learning instructional model in mathematics. This study included the opinions of the participants; however, the outcome does not suggest their perceptions to be that of a different or larger group of individuals under the same model. The students who were chosen to participate were selected as a sample representation of the school, primarily Hispanic and low socio-economic background. Consequentially, no students participated from middle to high income backgrounds, nor were all ethnicities a part of this research. The research results have not been conclusive as to the academic effectiveness of the flipped model, but only as perceived in terms of engagement by the participants. The data used in this research was meant to be analyzed as the prominent themes and ideas which emerged from the interviews given to the participants. The goal of this research has been to provide the individual experiences of the flipped model from three different groups in
order to explore the commonalities of their experience. Such descriptions may serve to better understand the flipped learning model as it is applied to students in order to contribute to this emerging field of educational technology.

**Definitions of Terms**

- **Flipped learning model**: A model of instruction in which digital technology is used to move teacher instruction outside of the classroom environment allowing students to view direct instruction anywhere and at any time. This shift allows instructors to maximize class time to foster higher student engagement through collaborative learning, problem solving, practice skills and more face to face time between teachers and students (Bergmann & Sams, 2012; Hamdan et al., 2013; Tucker, 2012; Fulton, 2012).

- **Phenomenology**: The study of several or more people who share a common experience or phenomenon in which each describe their individual perceptions of that event resulting in a common theme or essence of that experience (Creswell, 2013).

- **Educational technology**: The usage and application of various electronic tools and resources that provide educational learning and support in classrooms for the purpose of improving academic learning (Cheung & Slavin, 2011).

- **New Learner**: A student, who is digitally engaged, prefers just in time learning, has a limited attention, is confident and flexible, and learns in a variety of methods that builds upon collaboration, creativity, and problem solving skills (Edwards, 2005).
Summary and Organization of the Study

In Chapter I, the researcher introduced the study of perceptions of the flipped learning model included background, problem statement, a theoretical framework, statement of the purpose and research questions, rationale and significance of the study, the significance of leadership, assumptions, limitations and delimitations, definitions of terms, and summary. In Chapter II, a review of the literature examines educational technology including teacher and student needs, the changes that technology has brought to education and the introduction of the flipped learning model. Next the review presents research on the flipped learning model based on the history, characteristics, benefits, and its effectiveness on a variety of different learners. In Chapter III the methodology was presented including the research design, setting and participants, data collection and treatment of data, trustworthiness and epoche. In Chapters IV through VIII the data is presented from the focus group interviews of all participants. In Chapter IX an analysis of the data was provided and Chapter X was a summary, conclusion, implications, and recommendations for future research related to the flipped learning model.
Chapter II

Review of the Literature

The purpose of this qualitative phenomenological research study was to explore the perceptions of eighth grade math students, their teachers, and administrators who have participated in the flipped learning instructional model. Among many concerns in today’s classrooms, there are few that are more relevant than the way educators make use of their time and instruction when teaching students who have a multitude of abilities, special needs, and language barriers (Klingner, 2010). Leithwood and Riehl (2003) illustrated this point when describing the challenges of educators who must teach in a complex environment that is held to a standard of measured progress through benchmark and state assessments. They further noted that under these expectations teachers have to educate diverse students with cultural, economic, and learning disabilities. In addition, educators are affected by the outside influences of global competition, and the rapidly evolving usage of technology (Stewart, 2010). One response to these issues is the flipped learning model, which emerged as a new way to provide instruction using a relatively simple plan that inverts the direction of instruction at home, while providing an action based learning environment at school (Hamdan, McKnight & McKnight, 2013). This literature review will focus on educational technology, the flipped learning model, effectiveness of the flipped model, learning theories and the flipped learning model, perceptions of the flipped learning model, and limitations and critics of the flipped learning model.
Educational Technology

Unlimited resources, on-line websites, books, and videos have been developed to assist educators in using technology; however, the need to learn more about the implementation of classroom digital devices, software and the Internet is another added pressure that many teachers don’t have the time or resources to explore (Ertmer & Ottenbreit-Leftwich, 2010). While it seems technology has firmly taken root into our culture and society, in educational school systems there is still a gap of what, how, where and why technology should be used (Flumerfelt & Green, 2013; Wilmarth, 2010). Serim (2012) noted that the profession of teaching is one of the last areas in society to use technology for change. The other aspect of incorporating technology into the classrooms has been the investment of funds, time and resources into programs, which if adopted without a solid research basis has proven costly and ineffective (Fourie & Njenga, 2010).

Teacher training. In addition to providing adequate funding to support technology integration in schools was the need to provide training and support for teachers to assist them in making good decisions about technology usage that will increase student engagement (Wachira & Keengwe, 2011). According to Baker (2010), the influx of high-tech gadgetries along with constant changes and updates of software and digital media, often left teachers feeling confused and overwhelmed. Baker (2010) stressed the point that few teachers are prepared to use new media devices and have not been adequately trained to apply technology into their lessons. The National Education Technology Plan (United States Department of Education 2010), proposed that educational leaders need to replace sporadic and ineffective teacher training with
professional training that is understandable, consistent, and providing more direct in-person courses, allowing for more opportunities to collaborate with other teachers.

**The new learner.** In an era in which technology has provided a boundless number of interconnected possibilities to enrich learning, educators are challenged with understanding the new expansion of students who have acquired a nonlinear and unstructured ability to understand, process and problem solve, while self-educating without the benefit of the traditional educational framework used in past (Wilmarth, 2010). Today’s students have fully embraced modern interactive technology to learn what their self-interests are, but such acquired skills are not being optimized in the classrooms (U.S. Department of Education Office of Educational Technology, 2010). According to Sheskey (2010), not only has the process by which students learn changed, but the rapidity at which they can gather data has increased faster than previous generations.

Regarding the future of education, Michel and Nimz (2012) articulated the ultimate goal in this era of change will only be fully realized when new concepts and ideas are embraced. Furthermore, they noted that educators should not question whether to use technology, but how to use it to create a depth of intellect and comprehension both in literacy and numeracy.

In response to these demands, the National Education Technology Plan (2010), urged educators to make progressive changes in teaching that are technology-based, engaging, collaborative and dynamic, creating knowledge and skills applicable to the 21st century. The National Education Technology Plan (2010), illustrated while the pace of students who acquire the skills and confidence in using technology in many aspects of their lives has increased, there is a limited technological usage in education which has
created a gap between teachers and students. Ertmer and Ottenbreit-Leftwich, (2010) underscored this point, indicating that it is not sustainable for teachers to simply continue low-level uses of technology when fulfilling the needs of students in the 21st century. In addition, they stressed that using technology for the purpose of lecture-based instruction is not considered best practice nor beneficial to students.

Wilmarth (2010), described the momentous usage of technology as *ubiquitous connectivity and pervasive proximity*, as it has created dimensions of learning that are opposite of the standard linear system of instruction. The result of this phenomenon has been the advent of a new student, one who engages learning by doing (Wilmarth, 2010). Wilmarth pointed out that teachers who apply traditional techniques of instruction to the 21st century student will encounter resistance in the form of expressive and collective intelligence. Such restrictive teacher-led lectures are not compatible with today’s students who learn from a variety of sources of unlimited knowledge that is built upon the shoulders of each contributor (Wilmarth, 2010). Tyson (2010), emphasized that the way students should be instructed today should offer generative and creative possibilities that will empower them to produce new projects based on global review to share with the world.

**Project-based learning.** Serim (2012) described what he calls the Digital Learning Process as a design that bridges traditional instruction with 21st century skills. He noted that the disconnection of dispensing arbitrary and unrelated bits of information through the instructor now can be resolved through project-based learning using a variety of technology resources. Serim (2012) highlighted the importance of education to include creativity, collaboration, research skills, critical thinking, and understanding the
responsibilities of being a member of the digital citizenship as denoted by the International Society for Technology in Education (ISTE) National Educational Technology Standards for Students (NETS-S). Serim (2012) stressed that traditional approaches of teaching are fragmented and isolated, breaking up the natural order of learning in disconnected pieces.

Roessingh and Chambers (2011) highlighted the shift from traditional lecture based instruction to a model that valued such traits as open-ended discussion, debate, inquiry, problem solving, and exploration as an example of project based learning. The goal for students working in a PBL environment is to be empowered to learn, interact, experience, and discover with their peers (Roessingh & Chambers, 2011). Thus, the essence of a PBL experience should include authentic learning, engagement, coupled with rigorous levels of thinking.

Bell (2010), in her research about Project-based learning (PBL) in the 21st century, suggested that there is strong evidence that PBL increases student academic achievement. She cited a variety of school research in which students consistently outperformed their peers when being taught through PBL. Bell (2010) defined Project-Based Learning as an innovative method of teaching based on a variety of strategies which includes inquiry, collaboration, reflection, and problem solving. In addition, she described several attributes of (PBL) that has built student engagement and motivation. Among these attributes were increased curiosity, self-reliance, and social learning. Furthermore, she included the use of technology as an enhancement to PBL because students generally have a strong fluency and aptitude with computers, digital media and the Internet.
Active learning. One description of an active learner was interactive engagement with other learners, through the usage of social networking, allowing learners to communicate and exchange ideas among an unlimited number of other individuals (Jacobs, 2010; Stewart, 2010; Wilmarth, 2010). Wilmarth (2010) noted that such social digital networks have the potential of dramatically changing the way students learn and how they are educated. He pointed out that in spite of this phenomenon of digital networks; school institutional leaders have barely comprehended its implications. Rather than one person leading the charge of educating a set amount of students, there are virtually thousands of opportunities to learn from others among the digital spectrum. The role of educators now must become the facilitator among this continuum, rather than the single source of teaching (Hooie, 2013). In fact, Stewart (2010) envisioned in the near future the combining of classes among a global forum in which students will be learning together among peers from all over the world. Stewart emphasized the positive influences of Internet classes particularly for students of low-socio economic background, who seldom travel beyond their own community.

Another characterization of the active learner is one who is energized and engaged with solving problems through interactive and collaborative environments (Jacobs, 2010; Tyson, 2010). According to Tyson (2010), learning that is focused on the power of creative and generative influences based on knowledge drawn from a collective group of students and teachers have huge implications for the future. In the past, the task of a student to understand a concept required a passive process that would include scanning a textbook for the topic, possibly referring to a reference guide or dictionary, listening to a lecture in class and maybe visiting the library. While these may still be
viable sources to search, intuitively today’s student could simply access the Internet and has the ability to collaborate with others and instantly solve problems (Sheskey, 2010). The new learner is not satisfied to simply find an answer, but desires to construct and build ideas linking new information to prior knowledge (Enonbun, 2010).

**Flipped Learning Model**

Active learning described by Michael (2006), is the process of students engaging in activities that require them to assess their progress and reflect upon new ideas, in addition to actively solving problems and critically analyzing new ideas. The flipped learning model is a type of instruction that researchers have associated with both active learning and student-centered instruction (Hamdan et al., 2013). Through the time shift of direct instruction and usage of technology, this model has the characteristics of active learning, as students participate in constructing knowledge while working together as a group (Bergmann & Sams, 2012; Hamdan et al., 2013; November & Mull, 2012). This model as described by Alvarez (2011) is a technique teachers use to record digital videos of direct instruction providing an overview of what the students will learn including the content, examples, and finally ending with a summary. This method allowed for problem solving, interactive lessons, and daily assignments all to take place within the classroom, providing more personalized time between students and teachers (Alvarez, 2011; Bergmann & Sams, 2012; Hamdan et al., 2013; Tenkely, 2012). Bergmann & Sams (2012) articulated the purpose of flipping a classroom is to deliberately redirect the teacher as the focus of the lesson, turning the attention and responsibility back toward the student.
**Historical perspective of flipped learning.** Bergmann and Sams (2012) detailed their early experiments of the flipped learning model, as two chemistry teachers in Woodland Park, Colorado, who were struggling with the issue of students missing school because of athletic programs and other extracurricular activities. They described how in 2006, the high school where they were teaching was situated in a rural area; as a result, students were frequently leaving school early to travel to most school events. Thus, the chemistry teachers found the need to regularly reteach concepts because of absenteeism.

One way Bergmann and Sams (2012) addressed the issue was by recording their lessons using a PowerPoint slide show. A dramatic outcome occurred as a result of Bergmann and Sams posting videos for their students on YouTube. The chemistry teachers were astonished as people contacted them from different parts of the world who were learning from their videos as well. Consequentially, this effect led Bergmann and Sams to promote this innovative model through various presentations, books and lectures to share their ideas with others. One additional way they shared ideas was through the creation of a not-for-profit organization called the Flipped Learning Network. The network became a means to provide insightful skills and development strategies for teachers to use aimed at maximizing the effectiveness of using the flipped model for their instruction (Hamdan et al., 2013).

While Bergmann and Sams (2012) were not the first educators to use recorded videos in classes, they have become strong proponents of this model. Salman Khan (2011) has been another seminal leader in the field of flipped learning. In 2004, without any formal purpose of creating a universal brand of providing instruction to students, he videotaped himself providing math lessons for his nephews to view who lived in New
Orleans (Khan, 2011). Like Bergmann and Sams (2012), once Khan (2011) posted his tutorials online with YouTube there became an overwhelming response from viewers who were captivated by this new form of learning. Khan (2011) took this concept and eventually built a huge nonprofit enterprise that now provides over 2000 different types of online tutorials in a wide range of subjects.

The use of videos has been a pivotal point with Technology, Entertainment and Design (TED), an organization promoting the combination of these three components in one of the most extensive collection of lectures of extraordinary people with vast areas of expertise, creativity, and motivation (TED, 2013). TED Talks began in 2006 with the posting of six videos, which set in motion an incredible assembly of speakers becoming accessible for free, all over the world. The overwhelming popularity of the TED videos branched out into more specific areas of education called, TED Ed., Lessons Worth Sharing (TED, 2013).

TED Ed., Lessons Worth Sharing (2013), has included a component in which teachers can use a YouTube video for the flipped learning model and modify it according to the educator’s specifications, with features that can embed questions, comments and other links with the final product customized to the teacher’s needs (McKernan, 2012; Tenkely, 2012). Such abilities to build lessons upon the creation of other videos, which includes discussion points, and tracking of progress add an entirely new dimension of the usage of videos for learning (Tenkely, 2012). McKernan (2012), considered TED Ed. to be one of the most interesting organizations online that provides thought provoking and intelligent information. TED Ed. is the culminating efforts of how the flipped
learning model is expanding into a vast network of resources available in education (Tenkely, 2012).

**Characteristics of the flipped learning model.** The flipped learning model is an attempt to create more time for student application of new knowledge and active learning under the facilitation of the teacher (Bergmann & Sams, 2012; Hamdan et al., 2013; November & Mull, 2012,). The primary characteristic of a flipped classroom is that homework and problem solving aspects of learning are best done at school, while allowing the student to watch and listen to the direct instruction or lecture outside of class (Bergmann & Sams, 2012; Hamdan et al., 2013; Herreid & Schiller, 2013; November & Mull, 2012). Thus, the term flipped, implies a shift in the way time is used between the consumption of knowledge and the interactive process of learning (Bennet, 2012).

**Benefits of flipped learning.** There have been a number of aspects with this method of teaching that educators have found to be beneficial for students, which included having the opportunity to learn from taped videos of instruction that allowed them unlimited opportunities to watch the videos as often as needed (Hamdan et al., 2013). When a teacher presents new information in the classroom, it is offered one time in a setting that is problematic to distractions and may move too quickly for some students to process what is being taught to them (Hamdan et al., 2013; Tyson, 2010). Often classrooms have disruptions from other students, school announcements and issues with how fast or slow the teacher is talking (Finkel, 2012; Rhor, 2012,). Instead of the student receiving one opportunity of comprehending the direct instruction, he or she can review and pause the video while taking notes, allowing needed time to understand new concepts and new data (Hamdan et al., 2013,). Ultimately, when students are allowed to
learn instructional lessons outside of the classroom, there is flexibility for students to not only choose how often they want to view their video assignment but also where and when they want to see it (Hamdan et al., 2013; Tyson, 2010). Hamdan et al. (2012) noted the benefit of being allowed to break down segments of an instructional video lecture was the ability to prime students to remember key facts prior to a deeper level of engagement in class.

Another useful advantage of having prerecorded videos available to students was to avail those who have frequent absences from class for various reasons to still make progress by viewing instructional content at home (Bergmann & Sams, 2012). In a recent survey of the National Center for Case Study Teaching in Science, one particular quality of the flipped model that appealed to teachers was that students who were being taken out of school early for academic competitions, athletics, or other extracurricular activities could easily access the videos for their coursework lessons (Herreid & Schiller, 2013). This advantage of having videos available also helped when a teacher was absent and could use his or her digital recordings for substitutes to use for instruction (Bergmann & Sams, 2012).

While recorded digital instruction is the instrument of change in the flipped model, it is what happens in the classroom that offers the greatest benefit of this framework (Bergmann & Sams, 2012). The flipped classroom becomes a more active learning, student-centered environment in which teachers can spend more time providing individual assistance, engaging students in more collaborative problem solving projects, conducting research, as well as facilitating the needs of students who need personalized attention (Bergmann & Sams, 2012; Fulton, 2012; Hamdan et al., 2013). Johnson (2013)
noted in his research that in the flipped classroom technology is leveraged, allowing teachers more time to provide a learning experience in class that may include in depth exploration of ideas and essential feedback from daily activities. Gorman (2013) supported this experience by emphasizing that through thought provoking instructional videos viewed outside of class, students were encouraged to engage in meaningful related activities at school.

Finkel, (2012) noted that for students learning in a flipped classroom, there is a fundamental shift in where their applied learning occurs. He emphasized that students cannot simply sit and passively listen, without any active participation. This time period affords students real life applied learning while being guided by their teacher (Berrett, 2012). Under the new framework of the flipped classroom, students have to be taught how to stay focused, to work together with peers, and to be disciplined (Finkel, 2012; Fulton, 2012). In this new learning environment, there is an expectation for students to take ownership of their learning while assuming responsibility for their own learning outcome (Bergmann & Sams 2012; Hamdan et al., 2013).

Bergmann and Sams (2012) illustrated that the flipped learning model could be utilized in different formats and to various degrees. One example was the use of the Flipped-Mastery classroom where students were permitted to move at their own pace. They described this model as blending the concept of mastery learning with technology. The students who watched the videos and mastered the elements of the lessons through the class activities were provided the next lesson and advanced through the curriculum. In fact, Bergmann and Sams (2012) noted the flipped mastery model permitted the teacher to provide, needed supplemental assistance for individual students since there was more
time for personalized education. Furthermore, by customizing the class time this model potentially becomes the ultimate differentiated instructional environment. Johnson (2013) a practitioner, contended that he was able to spend quality time with a student who was struggling just as he could to assist a student in pre-calculus to extend their thinking in ways that were not possible under the traditional approach of teaching.

Effectiveness of the Flipped Learning Model

One particularly well documented case in which the flipped model showed evidence of significant improvement on student performance took place at Byron High School, close to Rochester, Minnesota (Fulton, 2012). According to Fulton (2012), Byron High School felt the impact of the 2009 recession and was compelled to find ways to improve its school progress while cutting back expenses. Fulton described that severe funding reductions resulted in the school district making the radical decision not to purchase new math textbooks. Consequentially, the math teachers were asked to collaborate on ways to creatively build their instruction and resources that would prove to be innovative, cost effective, and demonstrate academic growth among the students. Through the assistance and research of the technology department and educators of the district and Byron high school, the implementation of flipping math courses became a reality (Fulton, 2012; Hamdan et al., 2013). Without the benefit of textbooks, the teachers relied on software sources that assisted them in the creation of their own videos, which took the place of the textbook work, traditionally used as home work (Fulton, 2012).

According to data published by Fulton (2012), and Hamdan et al. (2013), the results of the Byron High School implementation of the flipped model showed considerable gains. In calculus there was an average gain of 9.8% on assessments;
precalculus rose 6.1% accelerated algebra II showed improvement of 5.1% in the median assessment scores, and similar results in the other math course. The most powerful evidence, according to Fulton’s (2012) report, indicated that on Minnesota state standardized tests Byron high school’s level of math mastery went from 29.9% in 2006 up to 65.6% in 2010. As a result, the school embraced fully digitalized content in the classroom as well as maintained a flipped classroom learning environment. Consequently, nearly three-quarters of the students passed the state assessment in 2011 at 73.8% mastery, which was more than double the results from 2008.

In Michigan, Clintondale High School, documented and promoted the success of the flipped learning model when the entire campus switch over to the model in 2010 (Clintondale High School, 2012). Green (2012), the principal of Clintondale High School in Michigan, shared the passing results of his school after implementation of the Flipped Learning Model. He noted that according to the 2010 freshman campus data, failure rates in all core subjects decreased. In fact, in math there was a 31% drop, science 22%, English language arts 33%, and 19% in social studies. In addition, the number of student discipline referrals was reduced in two years by 74%, suggesting that the flipped learning model may serve to increase student engagement as well as promoting academic progress.

**Effectiveness of diverse learners using the flipped model.** Ultimately, the flipped learning model may be the ideal structure to provide differentiated learning for all students (Blankson & Ntuli, 2013). Under the traditional method of teacher-led instruction, the efforts to personalize student education has not been sustainable particularly with secondary schools that have six periods a day, and an average of 150
students moving between each hour in a classroom (Johnson, 2013). Steele (2013) visualized this model as an addition to what is called the Universal Design for Learning (2013). He characterized this design as a guiding structure for curriculum that allows all students equal chances of a successful education, using all strategies and methodologies to teach students to learn. Steele (2013) related this design to the flipped model in its unique opportunity that avails students of the ability to access their own learning experience through the unlimited usage of time, space and data.

For English language learners (ELL), it is often a challenge for students to transfer their native language into English, while simultaneously processing information being instructed to them in a traditionally teacher-directed lesson (Orosco & Klingner, 2010). According to Hamdan et al. (2013), many ELLs initially learn in the lower levels of Bloom’s Taxonomy, which is basic comprehension of remembering and recognizing, when focusing on direct instruction. As a result, when the ELLs is provided their teacher-led instruction through digital media, the student has the chance to pause, repeat, and review what is being said, while moving at a pace that is beneficial to him or her (Hamden et al., 2013).

Students with learning disabilities have found support when using the flipped learning model (Bergmann & Sams, 2012; Herron, 2013). Because teachers have been challenged to provide continuous remediation and repetition for students during direct instruction, the flipped classroom avails the teacher more time to work with individual students on specific areas (Herron, 2013). Since the student can repeat the direct instruction as often as needed when viewing the videos outside of class, it has become a built in support for meeting the students’ individual education plan (Driscoll, 2012).
Fulton (2012) also indicated that students who are working on the application of homework and interactive lessons in class will allow teachers to better understand the deficiencies of students who are having challenges and can better assist them.

While the flipped learning model holds promise for students with language and learning challenges, it also has great potential for advanced learners (Bergmann & Sams, 2012). Under Bergmann and Sam’s (2012) framework of the flipped learning model, they have included an extended level of its usage called the Flipped-Mastery Model. This model is the logical extension of how far a flipped classroom can go, if implemented effectively (Bergmann & Sams 2012). Johnson (2013) described mastery learning as an approach of learning where students are allowed to achieve pre-set levels of competency allowing them to independently move on the next objective or lesson. Furthermore, Johnson (2013) indicated that while teachers have valued the concept of mastery learning, it is time intensive to implement it, consequentially discouraging teachers from incorporating into their classes. He indicated it is for this reason the flipped learning model works so well for mastery learning. Under this form of learning, students who are advanced can listen to the videos, complete assignments, and provide evidence in the form of a project or activity that shows mastery of that particular concept (Bergmann & Sams, 2012). No longer does the advanced student have to be held back with boredom while the teacher has to reteach and slow down the process for other students (Bergmann & Sams, 2012).

**Effectiveness of mathematic students using the flipped model.** The use of innovative and meaningful educational technology in math classes has been considered a potentially effective tool to improve learning (Cheung & Slavin, 2011; U.S. Department
of Education Office of Educational Technology, 2010). According to Green (2012), 31% fewer freshman students failed math at Clintondale high school, in Clinton Township, Michigan, when instructed under the flipped learning model. Through the use of digital instruction from the Khan Academy, an intermediate school in the Los Altos district of California made significant gains in all math classes (Clemens, Izumi, & Fathers, 2013). The results among seventh graders indicated that students who took the California standard exams went from 23% performing at, or above proficient in 2010, up to 41% in 2011. The same assessment also showed the lowest performance levels decrease from 29% to 12%.

**Learning Theories and the Flipped Learning Model**

Among the different types of learning theories, several have emerged as applicable to the flipped learning model (Bishop & Embry-Riddle, 2013). Millwood et al., (2013), evaluated good instructional practices and provided an extensive review of theories, which are compatible to learning with technology. One theory of learning referenced in this study was called Seamless Learning. In this model the learner was essentially free to learn any place, any time, and any subject because of the usage of mobile technology. Seamless Learning has been known to draw on the opportunity to be educated without constraints of a set environment or instruction provided by one individual (Chan et al., 2006). This idea of learning illustrated the ultimate learning environment devoted to authentic, blended experiences in which classroom walls become transparent (Gordon, 2013). Thus, the flipped learning model is similar to Seamless Learning because of the focus on accessing knowledge under any circumstances (Fulton, 2012; Gordon, 2013).
Millwood et al. (2013) related flipped learning, to a model of constructivist thinking, where using a cyclical process, the learner builds upon ideas presented infusing the student’s own experiences creating new concepts and expressions of learning.

Constructivist learning as interpreted by Vygotsky is defined by the social collaboration of working with others in the process of active engagement, questioning, and problem solving (Ismat, 1998). Gorman (2013) suggested that such descriptions of learning applied directly to a flipped classroom allowed for interactive learning that may inspire students to evaluate, analyze and connect to and collaborative learners. With the advent of the Internet, students have more access to connect with others, to build layers of knowledge, and they were more motivated to learn about their individual interests and curiosities (Enonbun, 2010).

Another recent theory of learning that has connections to the flipped learning model is Kolb’s Experiential Learning Theory (Bishop & Embry-Riddle, 2013). This theory is based on the premise that knowledge is developed and evolved through the process of an experience by “grasping” and “transforming” information (Kolb & Yeganeh, 2009). Kolb and Yeganeh (2009) explained that this theory is based on the cycle of continuous learning in which one experiences, reflects, contemplates, and acts upon what is learned. Bishop and Embry-Riddle (2013) identified Kolb’s Experiential Learning Theory as a component of what takes place in the classroom as an environment of student-centered learning that is cyclical in nature and includes active and critical thinking.
Perceptions of the Flipped Learning Model

As with most new innovative ideas, there are often many opinions and thoughts that have emerged, and the flipped learning model is no exception (November & Mull, 2012). While it has shown much promise and energy from its supporters, there are also those who have shown caution and criticism towards the flipped learning model (Bergmann & Sams, 2012; Hamdan et al 2013; November & Mull, 2012). Bergmann and Sams (2012) stressed that the flipped learning model is considered to be a dramatic shift from what has been the traditional model since the industrial revolution and it should be examined and evaluated carefully by all stakeholders of education, including teachers, students, parents, and administrators. The flipped model does not simply change where lectures take place, but completely Opens up the classroom in a very different and dynamic way, thus potentially transforming the standard model of teacher-directed instruction (Tyson, 2010). In addition, Fulton (2012) noted that such dramatic changes in an educational system that has been firmly established for years may be met with caution and skepticism among teachers and administrators.

Teacher perceptions. Bergmann and Sams (2012) believed teachers have the most to consider when contemplating the usage and implementation of the flipped learning model. For the educator, a new mindset is necessary when changing the face of a firmly established model of instruction that has been the standard for years (Fulton, 2012). Teacher-led instruction was developed generations ago, in which learning experiences were primarily linear and the delivery was a strictly structured sequential approach (Wilmarth, 2010). Consequently, modern teachers seeking to flip their classroom instruction, presumed to break away from the norms of the past and create a
multi-level, interactive, student led learning environment in which the teacher learns and facilitates alongside the students (Ertmer & Ottenbreit-Leftwich, 2010).

Fluker (2013) interviewed teachers, who have participated in the new flipped learning concept. His article described how teachers found that flipping the class provided a better usage of time and resources. One instructor Fluker (2013) spoke with indicated that while preparing the videos in advance is time consuming, it was worth it in the end because of the increased level of student engagement and participation. Rhor (2012) cited a teacher who stated that one benefit to flipping classrooms came from the fact that now she has more than the traditional handful of conversations a year with students. Under the new model students were getting more individualized attention and fewer are falling through the cracks. Rhor (2012) reported that while there was enthusiasm from most teachers, the flipped learning model required giving up a certain amount of control in the classroom and was chaotic at times.

The Flipped Learning Network (2012) created a survey, along with Classroom Window directed toward 450 teachers in order to ascertain teachers’ perceptions about the use of this model in their classes. Among the responses, 66 % of teachers indicated that state assessments improved after using the flipped model, 80% felt their student’s attitude was much better, and overall most of the teachers found that teaching was much more satisfying under the new model. Another notable result from these findings was that close to nine out of ten teachers all felt an improvement in their job satisfaction.

In addition, the Speak Up National Research Project & Blackboard K-12 (2013), reported in a recent survey that out of 56,346 teachers who responded in this research, 3,561 teachers have implemented a flipped classroom. Among this group, 48% viewed
themselves as being technologically advanced from their colleagues. 60% percent of these teachers felt their students were more motivated to learn in the flipped classroom, 45% believed that their students were taking more ownership of their education, 63% stated they were more organized, and 65% indicated they were creating more interactive lessons

**Student perceptions.** For students who participated in the flipped learning model, research suggested that students were positive about their overall experience (Hamdan et al., 2013). Johnson (2013), math educator and researcher, analyzed his student responses to a quantitative survey related to the perception of the flipped learning model. Some of the more notable themes that emerged from his study indicated that students felt more connected to their teachers and the time spent in class was more relaxing and engaging with other students. Also, the students noted that class time was not boring, and ultimately they felt they were learning more than if in a traditional math class (Johnson, 2013).

Furthermore, Driscoll (2012) included a student and teacher survey in his research that gave further credence to the swell of popular perceptions among students who have been instructed through a flipped environment. Among the more notable survey questions in his study directed toward students, the following stand out as indicators of positive results for flipped learning: 83% of students felt more active with more opportunities for experiential learning, nearly 79% found they had more opportunities to interact with their peers and teachers in a positive way, 79% had more time to work at their own pace, and 80% felt that they had more accessibility to class resources and instruction (Driscoll, 2012).
**Parent perceptions.** Shepard’s (2013) interview with parents, noted they believed the flipped model gave their children ownership of their education, and it helped them to assist with their children’s assignments. Parents were able to view content and information, often learning or reviewing concepts that empowered the parent to be educated as well (Alvarez, 2011, Baker, 2010). Bergmann and Sams (2012) described that during their parent conferences, parents conveyed how they learned the science subject material with their students and the experience opened up a new found dialogue between the students and their parents.

According to Bergmann and Sams (2012), the flipped learning model revealed a few surprises related to parental support. They indicated that parents learned how involved, and in depth teaching was when watching the digital videos, and an added appreciation was noted towards the teacher’s role of their child’s. Consequentially, classrooms were made available for public viewing, which provided transparency to those who questioned what actually is being taught during instruction. According to Bergmann & Sams, posting their instructional videos on line had dispelled some of the mystery and mistrust that kept parents at odds with their child’s educational system, thus, creating a positive understanding regarding the level and skills of learning that take place in school.

Some other benefits that parents found in having an instructional video available was that when their child was ill and could not attend school, they were still able to review the lesson from home (Bergmann & Sams, 2012; Fulton, 2012; Hamdan et al., 2013). Finally, Bergmann and Sams (2012) described a story of one teacher who was provided the unique opportunity to teach not only her young ELLs through the listening
and reading of her materials, but also the ELLs’ families also were reaping the benefits of learning English as well.

In the Speak Up National Research Project and Blackboard K-12 (2013), 39,713 parents participated who answered questions over trends in on-line learning, which included blended and flipped classes. Of parents surveyed, 62% believed that the usage of on-line learning for their children would allow them to work at their own pace and 59% thought on-line learning would provide their children the added benefit of being able to review materials as often as needed. Parents expressed a high interest particularly in increasing opportunities for high school students to have on-line courses available. A third of those parents surveyed wanted schools to invest more into providing on-line classes.

**Administrative leadership perceptions.** As the flipped learning model and the other technological advances afforded to education continue to gain momentum and examination, educational administrators need to be proficient and knowledgeable using technology (Starr, 2009). LaFee (2013) prescribed that administrators should provide professional development and innovative resources to support teachers. The recommendations from educational leaders have been the catalyst in which real reform occurs when involving technology initiatives (LaFee, 2013).

Speak Up National Research Project and Blackboard K-12, (2013) reported that many administrators were searching for ways to incorporate technology while leveraging the balance of resources and the usage of digital media. In the survey, one school administrator from Plano, Texas enthusiastically embraced using technology as a crucial means for student learning, and felt it would be an injustice to students if the vast amount
of resources available were not utilized in their education. The survey also indicated that in 2012, 43% of district administrators were using some variety of online learning to assist students with diverse needs. In addition, administrators felt that increasing their own professional development in on-line learning changed their perception on the importance of this method of learning for their students.

Limitations and Critics of the Flipped Learning Model

While the concept of redesigning the traditional instructional model suggested a progressive change, the flipped model has factors that may limit or compromise its success (Bergmann & Sams, 2012; Hamdan et al., 2013). One of the most pressing issues mentioned in the research was the accessibility for students, particularly in low income areas, to view the digital videos in homes without computers or Internet (Defour, 2013; Hamdan et al., 2013; Rhor, 2012; Williams, 2012). Bergmann and Sams (2012) discussed how they overcame that concern by first making sure the videos were available in different places and forms. They posted it online at both public sharing sites and the district server, as well as provided opportunities for students to download them to a flash drive, or they could load them on personal devices. If a student had no access to a computer, the teachers would burn copies on DVDs as they learned that all of their students at least had a DVD player at home. November and Mull (2012) also suggested that schools should create outside opportunities to Internet access before and after school, as well as providing a loaner program for students to use at home.

The second challenge of flipped learning related to teachers, was the time invested into recording videos (Hamdan et al., 2013). In November and Mull’s (2012), article, Flipped Learning: Five Responses to Common Criticisms, several solutions were
offered to aid teachers who don’t have the time to create all of the digital recordings.

First, it is suggested that teachers share the roles of video recording so they can take turns for each lesson. Working together as a team helped to alleviate some of the time-consuming aspects of video recording and helped to build a consensus among colleagues about the needs and goals of the lesson. In addition, November and Mull cautioned teachers not to obsess about making videos for every class, and instead, to start off with only one or two a week and gradually build up the video recordings as time allows.

Bergmann and Sams (2012) also suggested the option of utilizing other prepared videos available online through a variety of websites. They pointed out that for beginners the choice of using other videos may be the best option in providing extra time needed to prepare the classroom time activities, and gradually teachers will be more confident and record their own instructional videos.

Critics of the flipped model argued that two aspects of this concept were contingent on doing homework and listening to lectures, which they considered to be the least effective way for students to learn (Nielsen, 2012; Stager (2013), as cited in Hamdan et al.,2013). Hamdan et al., (2013), reported that Stager debated Sams on a radio program disputing the notion that the flipped learning model was effective, stating instead it is evident of a “bloated curriculum,” which forced content to be further taught outside of class. Stager also believed that such practices could eventually force a reduction of qualified teachers to be replaced by inferior instructors who simply record instruction. Refuting these allegations, Sams articulated in the report how highly effective, professional teachers would be in more demand and essential to success in a flipped classroom, through the application and facilitation of higher learning, in class.
Summary

In chapter II the literature was reviewed regarding the impact of educational technology, as well as the introduction to the flipped learning model. In Chapter III a detailed description of the methodology used for this research is presented. In Chapters IV, V, VI, VII, VIII all focus group interviews were provided. In Chapter IX a complete analysis of data is given and in Chapter X a summary, conclusion, implications, and recommendations for future research related to the flipped learning model.
Chapter III

Methodology

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. The goal was to establish common ideas and impressions that emerged during the implementation of the flipped learning instructional model as it related to student engagement, motivation and the perceived effectiveness of this model. In order to establish a solid understanding of the phenomenon of learning through the flipped model, the researcher carefully presented a variety of data that was built upon current practices and data research that provided a thorough understanding of what flipped learning is, as well the general usage of technology in the classroom. This research was designed to illustrate a clear understanding of trends in educational technology as it relates to flipped learning, and to further explore how educational technology applies to different types of learning theories. This chapter describes the research design implemented in this study, details of the participants and the setting, the data collection and analysis process and assurances of trustworthiness in the methods used for this research.

Purpose Statement and Research Questions

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. This research explored the phenomenon of individuals who
have lived experiences participating in flipped classes to observe and elicit impressions and consensus about their experiences. Through the use of open-ended interview questions directed towards teachers, administrators, and students the following research questions were explored.

1. What technologies support video delivery to engage students in a flipped learning instructional model?

2. What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

3. What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

4. What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

**Research Design**

The design used in this research was based on the method of phenomenological bounded case study described by Creswell (2013). This design analyzes certain common themes and perceptions that occur during a shared experience by a number of individuals. The methodology of this research was considered a bounded case study because it took place at one location and for a limited time period. It was the goal of this research to explore the experiences or phenomena that took place among participants related to their involvement of the flipped learning model. According to Creswell (2013), phenomenological research is based on understanding the psychological and social perceptions of the individuals who shared the experience. The intention of this research was to understand those perceptions through the use of open-ended interview questions
designed to solicit fully described details, opinions and feelings about the individual experience of the use of videos in the flipped learning instructional model. Five different focus groups including school administrators, students, and their teachers were interviewed to create a composite of diverse opinions and perspectives regarding the essence of their experience related to the flipped learning model. The purpose of using focus groups for this research was to encourage dialogue and exchange of ideas among participants, particularly with students. Morgan (1996) described the process of using a focus group in a qualitative study in order to elicit group interaction based on a common topic or experience. The bounded case study took place at one campus for a period of three months.

The value of using a qualitative approach for this research was to better understand the perspectives of the participants in order to evaluate ideas and impressions, while constructing a comprehensive viewpoint to form holistic assumptions about their experiences. The role of the researcher was to formulate patterns and themes that emerged from the interview processes, without any presuppositions about what was expected from the interviewees. Stewart and Mickunas (as cited by Creswell, 2013) emphasized that the researcher maintains a non-judgmental position regarding the real or “natural attitude” of their respondents. For this reason, the researcher bracketed her position as an educational practitioner, serving as a school assistant principal. While the researcher has experiences as a teacher and administrator, she recognized her role as researcher is to be non-bias and objective during data collection and analysis of this research.
The origins of phenomenology were connected to the philosophical basis of human responses as related to one’s reality and lived experiences (Creswell, 2014). Tuohy, Cooney, Dowling, Murphy, and Sixmith (2013) recognized phenomenology as the exploration of life through the expressions of one’s own experience of living. According to Husserl (1938), (as cited by Creswell, 2013) the object or experience of a person’s reality is uniquely viewed from the consciousness of that individual. Thus, the goal of this research was to articulate each participant’s responses, in their own words, and not only identify common themes, but individual divergent thoughts as well. In addition, Hycner (1999), (as cited by Groenewald, 2004) indicated that unlike a tightly structured quantitative research, phenomenologists generally do not focus on specific steps because the unfolding of a phenomenon does not always adhere to a strict method of procedure.

**Setting and Participants**

The campus in which the research took place was in an older community outside of a large metropolitan area in Southeast Texas. The area of the school was in an economically disadvantaged area with a diverse racial and ethnic population. The campus was built in 1964, and was originally considered a model campus in a newly developed neighborhood in the mid 1960’s. There is a mixture of middle income older homes, apartments as well as mobile home communities. The local area is economically supported by a large amount of petroleum and oil refineries nearby. The mobility rate of students at this campus was 20.1%. The rationale for selecting this campus for research in regards of the flipped learning model is the opportunity to learn from students that traditionally have not had the technology means to sustain an instructional model such as
flipped learning. Because of the lack of mobile computer usage available to many students considered economically disadvantaged, the one-to-one technology grant, in which all students were provided a netbook computer, implementation and research of the flipped learning instructional model, was made possible.

A purposive sample of 15 math students’ 12 to 15 years of age, three math teachers, and two administrators participated in this phenomenological bounded case study. The students were demographically representative of the student population of the campus. The latest 2011-12 Academic Excellence Indicator System (AEIS) report indicated that this campus had 84.5% Hispanic students, 11.6% white students, and 3.5% African American students. In addition the campus had 84.5% economically disadvantaged, 50.4% identified as at-risk and a special education population of 10.7%. Students who participated were also part of a one-to-one technology initiative on the campus in which they were provided netbook computers. Each student participant had access to a computer, thus, reducing an identified barrier of the flipped learning model, which indicated that students of economically disadvantaged backgrounds do not have access to computers.

The teachers who participated were two regular 8th grade math teachers and one 7th grade Pre-Advanced Placement (Pre-AP) teacher. The coursework for the 7th grade Pre-AP students was the same as the 8th grade group; therefore each group of students shared an identical curriculum. One 8th grade teacher was identified as Hispanic, and a first year teacher. Another 8th grade teacher was Caucasian, with nine years of teaching experience, and the 7th grade Pre-AP teacher was Caucasian with five years teaching experience. The two administrators interviewed were the campus principal, who was
Caucasian, and had 15 years of administrative experience, and the assistant principal over 8th grade, was Caucasian, and with four years of administrative experience.

**Data Collection**

Data collected from this research was primarily drawn from a semi-structured, in-depth interviews from all 20 participants of this study. The interviews were broken up into three categories based on three different perspectives of the administrators, students and teachers. Students were divided into different focus group interviews according to the math teacher who instructed them. The interviews took place following a three-month period in which the flipped learning instructional model had been implemented. Each interview was audio recorded and transcribed. The compilation of transcribed interviews was analyzed using the process of reducing information, in order to describe common themes among significant quotes and statements given by the interviewees (Creswell, 2013). Furthermore, as recommended by Creswell (2013), a comprehensive journal of note taking from the researcher was implemented. It included coding key words and listing index codes for each participant to protect anonymity of the participants.

**Participants.** The participants were given an informed document that provided detailed information and explanation of the study and its purpose. A copy of this letter is in Appendix F of this research. The participants were told how their interview would be used in relation to the study, as well as the procedures and expected amount of time that would be dedicated to the interviews. The participants were assured that they could opt out of the study at any time should they choose to do so, and that all participation was voluntary. The participants were given similar questions, but were changed slightly as it applied to each person’s role in the flipped learning model. For example, students were
considered the learners, teachers were the instructors, and administrators were the observers. The open-ended questions allowed for participants to expand on their responses. Each respondent was allowed to question the researcher for clarification or examples.

**Interview process.** An interview protocol form and guided questions were used for each interview. The protocol form was used by the researcher to record information data about the interviewee, the time and location of the interview, and the questions that were asked during the interview (Creswell, 2013). Each interview lasted between 30 to 45 minutes. In addition to the written interview protocol, all interviews were recorded through the use of a handheld recording device that had a small microphone attached to it. The interviews all took place in an administrator’s private office located on the school campus.

Creswell, (2013) noted a responsive interview model permits the researcher to adapt the interview process, questions and location as needed according to the circumstances. This model was used because it allowed the researcher flexibility and the approach to using main questions, follow up questions, and probing questions. In addition, introduction questions were included to get to know basic information about the interviewee. The details of the questions include gathering perceptions about whether learning from the flipped learning instructional model was beneficial or problematic, whether student learning and engagement improved or not, and what recommendations were made for future implications about using the flipped learning instructional model. The complete list of questions can be seen in Appendix A.
Treatment of Data

By triangulating the collection of data provided by teachers, students and administrators in interviews, this research provided an in depth analysis that explored the perceptions of this learning model in a more comprehensive manner. Arksey & Knight, (1999) noted that the significance of collecting data from three different groups provides triangulation to compare and contrast data. In addition to categorizing the interview data from the questions, three separate groups were created to identify the perspectives from students, teachers, and administrators. Using interview data provided insight in greater detail how flipped learning instructional video lessons were implemented, any issues or challenges that came up during the process, and ways that the flipped learning instructional model could be improved. A transcriptionist was solicited to type the audiotaped interviews. The transcripts of the interviews and the interview protocol document were reviewed several times and certain concepts were formulated through the categorizing of common words and statements that expressed a particular feeling or impression the interviewee shared with the researcher.

The process of categorizing these sentiments from the interviews was assembled into clusters of meaning (Moustakas, 1994), as cited in Creswell (2013). Creswell (2013) provided a template designed to draw conclusions and to develop the essence of the phenomenon. The first aspect of coding this phenomenological research was to assemble all of the relevant statements that the researcher found to be important. The next category articulated the researcher’s interpretation and meaning of the statements. The following step was the analysis of data that included a textual description (Creswell, 2013) which
was the actual recounting of the event itself, namely the experience of learning, teaching, or observing the flipped learning instructional model. The last phase of interpreting the interview data was to categorize Creswell’s *structural description* of the experience in which the interviewees expressed how the events occurred, for example the frequency of the videotaped assignments and how the classroom time was organized. The researcher created a profile of all participants using a pseudo name for each individual; general information about each person, including their age, sex, ethnicity and, in the case of teachers and administrators, years of experience in education were included. The purpose of developing profiles was to determine if any pattern in responses were identified based on other factors such as gender or ethnicity.

The completion of the various data coding and charting presented an analysis of different perspectives and viewpoints from the three different groups of participants. As a result, the data yielded insightful opinions and thoughts that allowed the researcher to better understand the experience of how the flipped learning instructional model affected each participant. This information gave insight into the advantages, limitations, challenges, and benefits of digital media instruction through the flipped learning instructional model.

**Provisions for Trustworthiness**

In order to validate the transcribed data taken from the interviews, a member check was done with a sample of individuals who were given copies of the transcriptions and the interpretations to ensure that the true meaning and essence of what they stated was factual and accurate. In addition, the researcher made concerted efforts during the
interview process to restate statements back to the interviewees for confirmation of what was said or understood.

The value and trustworthiness of this study required that the researcher demonstrate her commitment to present this research in a factual, non-bias manner in which her position and role was assumed as a neutral and balanced position. Finlay (2008), described this term as bracketing in which the researcher makes every effort to set aside any preconceptions that might influence the researcher in their pursuit for a meaningful, descriptive and interpretive phenomenological study. Groenewald (2004) further pointed out that the researcher should to the greatest extent, withhold from making premature assumptions when categorizing data, in order to prevent any bias from pushing data towards a preconceived position.

The researcher provided an approval from the Institutional Review Board (IRB) from Lamar University in Appendix A, stating permission to conduct this study. In addition, a certificate of Protecting Human Research Participants course completion by the researcher in Appendix B of this research was provided.

**Epoche**

Moustakas (1994), as cited in Creswell (2013) reflected on the concept of epoche, which is the phrase also referred to as bracketing the researcher from the study. He stressed that the investigator must separate their own background and experiences from that of the participants and that the researcher should attempt to see the phenomena freshly, as if for the first time. Through the extraction of predisposed ideas, the research will be receptive to the multiple impressions provided by the interviewees. While a
researcher cannot completely detach from one’s own opinion or experiences, caution should be taken to ensure that it does not impact or influence the validity of the study.

As the researcher of this study, my position is that of an assistant principal at the campus in which this study took place. My role as an educational leader was to employ the interview process with fidelity and without any personal interest in the outcome of the data analysis. As an administrator, my goal was to learn more about whether the flipped learning instructional model was an engaging method of instruction that was beneficial to students. In the role of researcher, my position is to neither be for or against the perceptions and comments provided by the participants, nor was it for me to judge or influence the shared experiences provided through this research. I have no prior experience teaching from the flipped learning instructional model, however, I have a strong interest in how it might influence the future of learning. I also am interested in the future trends of distance learning and educational technology.

**Summary**

In Chapter III the methodology was presented including the research design, setting and participants, data collection and treatment of data, trustworthiness and epoche. In Chapters IV through VIII presented the focus group interviews of all the participants. In Chapter IX an analysis of the data was provided and Chapter X includes a summary, conclusion, implications, and recommendations for future research related to the flipped learning model.
Chapter IV

Student Focus Group One

The first focus group was comprised of six students who were between 12 and 13 years of age. Two were boys, and four were girls. Among this group, five out of the six were native Spanish speakers. This group consisted of seventh grade Pre-Advanced Placement students who were taking eighth grade math. Students were receptive and interactive during the interview process, and eager to share their perceptions of the questions presented to them.

Among the six students in focus group one, the overall consensus was that their teacher, Mrs. Horner, provided an average of two videos a week for their viewing assignments outside of school. Teresa said, “We averaged, like, two times a week but on rare occasions we would have three when we needed extra help.” The students explained that occasionally their teacher would create an additional video when she knew they needed extra time on a particular math subject.

Research Question One – Technologies Supporting Video Delivery

Research Question One asked: What technologies support video delivery to engage students in a flipped learning instructional model? Questions from the guided protocol were designed to elicit student perception responses about access to the internet, electronic devices, and other technologies used outside of class to support engagement when receiving math instruction through video delivery in the flipped learning instructional model.
**Internet and electronic devices.** I asked the students if they were able to access the internet and use any other electronic devices besides their school issued netbook to view instructional video delivered lessons at home. Five of the six participants all stated that they had internet at home. The general consensus among the students was that internet availability was not a problem except when there was an occasional weak connection. One student, Marie, mentioned having to go to other places to access the internet. She said:

At home I have internet, but sometimes it would like stop working so I would have to, like go to another place where they have internet like McDonalds or Barnes and Nobles but I would still be able to watch it.

Students discussed the use of the Schoology, a learning management system (LMS) that provided easy accessibility to the instructional videos. This LMS provided students with a social network feature so they could ask questions and communicate with their peers and teacher on-line. The students indicated that part of their requirement after watching the instructional videos at home was to pose questions to one another on Schoology that were related to the problems presented in the video. Another aspect of Schoology was the ability to contact their teacher at any time to ask questions or get clarification about the lesson. Natalie said:

We use Schoology so we could also, like, send her [teacher] messages and we would tell her [teacher] what we needed more help on, and like on that exact same night and we would also ask her more questions.

Carlos added, “We could send each other messages, ask each other questions, ask the teacher questions. It’s kind of like a Facebook about their school.”
**Technology outside of school.** I asked students to describe their experiences with using technology outside of school to view their assigned video lessons. The students concluded that the experiences of using technology beyond school had only a few minor issues.

Teresa answered:

> It wasn’t really hard for me because I’ve got help. My Dad has a computer that he has at home and there is Wi-Fi so it wasn’t really a problem for me because he felt he wanted me to do well.

Maria stated, “It wasn’t that big of a problem because my internet usually always works and it doesn’t like crash. It only crashes like once a month so I don’t see any problem with the flipped learning.” Freddie added, “For me, like, I really didn’t have much problem because I have my internet at home and it doesn’t crash very often. It doesn’t really ever crash but sometimes there’s problem with distance.” Jessica stated, “I have a slight difficulty, like about 12%, of a difficulty because like I said, if I had activities at school now thinking about home problems [she indicated she would forget to download the videos because of other problems] and stuff like that.” Natalie added, “I’m Natalie and yes, I didn’t really have that much problem because it really never like stopped working. But whenever it did it was only like 2% that it doesn’t work.” Finally, Carlos concluded, “I’m Carlos. It wasn’t really a problem like many said it does like crash only like once a month but sometimes it goes on and off but it wasn’t that much a problem, maybe 10% of a problem.”
Research Question Two- Benefits of Video Delivery

Research Question Two asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand the students’ perceptions of their experiences, engagement levels, math benefits, and how class time was used during implementation of the flipped learning instructional model.

Experiences with the flipped learning instructional model. I asked the students to describe their experiences being taught through the flipped learning model instructional videos. Overall, they spoke favorably about the experience and indicated the videos assisted them to learn skills. Students specifically mentioned that accessibility to all of the videos, both from their past lessons and current ones, were a benefit to their learning because they could review their teacher’s beginning instruction to refresh their skills. For example, Freddie stated the following:

It helped you to be stronger and take away barriers that you had because you could go over it again and keep learning on it. Sometimes, we’d go on holiday breaks and you would study all of it again, bringing it all back so you wouldn’t forget it. Like you watch every single video three or four times.

Another benefit that the students enjoyed from this method of learning was the ability to be taught within their own comfortable environment. One example articulated by Teresa was:

Being taught something in class is really different from learning from the video because in class you’re in hot jeans. You’re in your sweatshirt. You’re in a chair and you just sit there, but at home you can do it like any way you want. You could
be eating something, or in comfy clothes which are way different from the classroom.

Freddie added:

You’d be in your PJs. You do something good. You’re just eating cereal watching a video and taking your notes. Sometimes you’re tired during the day [at school] and then when you come back home at night, you just relax in your bed watching it, taking your notes, and have fun with it.

Marie commented, “Being able to watch the videos at home was helpful because friends at school could be distracting.” Natalie agreed and said, “Your friends always distract you. They don’t like to pay attention, but whenever you’re in your house you get to be by yourself in your room and you can pay attention better.” Jessica emphasized:

Your friends always want to talk to you. They want to hang out with you, but sometimes it’s hard. Like during math, or any subject they just want to talk to you and it’s very distracting because you can’t learn that certain objective or something like that.

Freddie summed up this sentiment when he stated:

Well, in school your friends always are going to distract you at this age. There is a lot of drama. They throw problems on you and that’s all you can think about it and you’re mad because you can’t focus, and sometimes you’re nervous or you’re angry. You don’t want to listen to the teacher. Like you just sit there and want to be by yourself and think about all those problems. While at home you’re just there. You know. All relaxed eating your cereal watching your videos.
The discussion also revealed the limited amount of time to learn when strictly being taught during class time. Consequently, the students viewed the flipped learning model videos as a benefit to their learning. Carlos commented:

In school you don’t have like hours and hours to learn something. You have a certain time and when you have friends that distract, you know you have to learn quickly, and if you didn’t get something you can’t go back because it’s time for the next class. But at home you can just go back and learn it again. Just rewind the video and see what you missed and understand it better.

Freddie followed up by saying:

In school you only have one hour in class time, and that’s all you have to learn it and to study it before you go to your next class period and have to think about your other subjects. So it’s not always easy to just learn it in one class period. It takes time to learn something. You got to work on it and study a lot.

In addition, Jessica noted:

She [teacher] can’t go back. She can’t re-teach the lesson over and over again because she has other things she needs to teach us, other objectives that she needs to teach. And having those flipped videos and everything helped us put less strain and less stress on us and helped us.”

**Engagement levels.** I asked the students whether they believed their levels of engagement in learning from the flipped model were higher, lower, or the same as traditional direct instruction. This question opened up a lengthy and interesting dialogue among the students. All six students strongly agreed that engagement was higher when they were instructed using videos as part of the flipped learning instructional model.
Among their perceptions of higher engagement, the students mentioned the use of humor, music, comfort, accessibility to all videos, and social networking as contributing factors to increased engagement.

The students claimed the teacher-made videos incorporated both humor and music to help students connect with the math concept or idea. The students reported the teacher’s use of humor and music held their attention while watching the videos. For example, Freddie described some aspects of the videos saying:

She [teacher] would also use examples like her daughters, what they were doing in the video if they helped out, or she would have our other teachers interviewed about something like volume, how they answered. She would also use some certain songs during the video to see if you’re actually paying attention or not.

Teresa added to Freddie’s comment by noting:

She would like have her daughters in and some music playing so that you could totally focus and keep your attention. Like we’ve got your attention not just some boring Math video they’re watching at home like, oh my god, what are they doing? So it’s like, she had to keep it up with music and her daughters to make it some fun activity with the topic.

Jessica recalled:

The teacher would incorporate songs, like a Justin Bieber song or a math song that we learned during class just to refresh our memory and it will help us remember what we’re learning and how to do it.

Freddie added, “She would like to keep it humorous like something funny to keep you with it like it wasn’t just something you’re just watching. Oh, and her daughter
will make faces behind her and stuff like that.” Teresa followed by saying, “It’s not just a boring video. You’re not just lying in your bed saying okay, I don’t get this topic and it’s boring. Can I watch something else?”

In the students’ conversation they agreed that certain aspects of using music and humor helped them to retain the information they learned and would connect back to it when being assessed. Freddie described these techniques when he said:

You would remember the little songs you played to help you keep going, and like, when I was like doing a pre-quiz or something, you’d remember the little song and that would help you to remember how to do it, and like the steps and what not to do.

Jessica added the following:

It helped us to go faster and then the songs and the little funny jokes that she would play and everything which will help us not think the subject was so boring. It would be on our head if we’re taking a STAAR test or a regular test any kind of test.

**Math benefits.** I asked the students whether they believed the flipped learning experience was more beneficial for their math education. The students reported that receiving their instruction outside of the classroom improved the speed at which they learned concepts, and they felt the instructional videos provided a strong memory support through the use of music, humor, and interesting examples.

Freddie stated:

It’s been more like, it’s been more beneficial to help me understand what I need and not to just be blank there and not know what to do. You know the subject.
You know everything by heart. You know what to say. How to do it. What steps you have to do. What not to do. Some shortcuts they teach you to learn how to do it faster.

Jessica followed up Freddie’s comments:

I would like to add to Freddie’s views. It was more beneficial because we were able to go through it faster and go to the next objective. Or be faster and get more time with the lesson for the STAAR and it really was an important test for us.

Marie continued the conversation by saying:

The flipped model have been really beneficial because it helped you get things faster and understand it and the next day you get that subject done and you start a new subject. And with the STAAR testing like coming close you have to get it faster than you can with the class time so you have to do home and then at class you review it until you get it. Then you go again until you get everything and then you review it.

Freddie shared with the group by saying:

I’d like to add on. Like with STAAR test you would start it, then you go home and you watch all those videos. You remember the songs. You remember what you need, so in the STAAR test you’re like, how did the little song help you with this. Oh, look! It says it’s warning. Don’t do this. Like it helps you out with what you need. Reviewing, I mean like you’re confident because your teachers are teaching to you and you have the confidence that you’re going to do good. You’re going to know what you have to do.

Jessica continued from what Freddie said by responding:
I’m Jessica. I would like to add to what Freddie said. It was like, all those little things we go back to because we didn’t want to be nervous, but not have that feeling during the test, “Oh, I don’t know what to do! I’m scared,” and I get the feeling mostly. It brings me down on my test because I don’t have that self-esteem in a way for doing good. So going back to the video. Going to our notes that we took from the video helped us like all those little things you need. Like X. If you flip the X axis. Stuff like that. It helps.

Teresa commented:

My name is Teresa. With STAAR, because there’s so many concepts and topic that you have to learn on, but in that flipped videos you can get that one topic out of the way, so you can go to something else that’s like a lot harder. So you can have it and be good in your Math.

I asked the students if having the older videos available reinforced their learning in math. Marie responded by saying:

I’m Marie and, if we can go back, it’s better, but we can’t go back to the day Ms. Horner taught us at school. So we always have the video there. So we can go back and watch it so many times but we can’t go back to the day that she taught us that.

Freddie added, “Time travel hasn’t been invented yet, but you have the video so that’s like you’re sort of time travel to go back.”

**Time in class.** The students were asked to describe what time in class was like when being instructed through the flipped learning model instructional videos. Among the six students there was little variance in their descriptions of what class time was like while being provided video instruction through the flipped learning model. Initially the
responses focused more on how beneficial it was to come to class already understanding the topic of the day. Teresa stated:

You can tell people who had seen the video and who hadn’t because they would like have no clue what was going on. People who did watch it was like [snap fingers]. You could tell the kids who would rise above it.

Marie added, “We would get things done faster because of the flipped learning. We didn’t have to spend much class time like going over until we understood it.” More specifically, Freddie described:

We would go and check what we had done. Look at the notes we had taken and see any questions that we had. And she [teacher] would ask the essential question we had to answer and if you didn’t really get it and you’d go and talk with her [teacher] and she [teacher] will check if you actually did the work and helped you along.

Freddie also added:

She [teacher] would give like a brief summary about it because we mainly knew about it, but there were some parts that didn’t. So she [teacher] would ask and give a summary about it and like what it’s mainly about, and what’s important.

The students also shared their experiences in class which included collaborating and problem solving together and how they were encouraged by their teacher. Jessica gave the following example:

We would collaborate. We would talk and incorporate our ideas and we would basically have an argument. Me and my friends we would argue. “No, it’s this! No, it’s that,” and then finally I’m like, “Oh never mind.” It would turn out she
was right and I apologize. It’s something like that. It’s better to collaborate than just having your way and you think it’s right, but it’s really not. You have to see what other people think and they process the question through their mind.

Marie emphasized the collaboration when she noted:

Almost everything that we do is done is as a group because Ms. Horner knows that sometimes we can’t do everything by ourselves. We need each other’s help and we always have the table in group form and never like separate unless it’s a major test.

Freddie then recounted:

Mrs. Horner would have us like, at my table it was Teresa, Marie, and me. We’re our own little Math buddies you know. We’re there to help each other like if you’re doing badly at one subject someone else knows better than I do and she helps me up. If she’s doing badly on a subject and I don’t understand it either then we repeated it all to each other and hope to figure it out.

**Research Question Three- Challenges of Video Delivery**

Research Question Three asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand student challenges related to internet accessibility, video preparation time, and video comprehension.

**Internet accessibility.** I asked students about technology usage outside of school and one noted concern was internet availability. They believed that downloading the videos in advance would be more efficient and it would reduce the internet access worries
from home. The students explained that the teacher would attempt to download the videos prior to that evening’s viewing assignment, but sometimes did not get it done until after school hours.

Freddie pointed out that the videos were not always downloaded timely enough before they went home. He said:

Sometimes she [teacher] wouldn’t post it when we’re at school. She [teacher] posted it like six o’clock, or like at five when we were already at home then. We had no internet. Wow! Like it would improve it if they could just send it directly and download it already. Like it would be easier.

Jessica expressed that she had to use her mother’s smart phone to access the videos if she was unable to download them before she left school, because her mother’s phone was the only way for her to access the internet. She acknowledged that sometimes when her mother had to work late she would not get the chance to watch the videos and would have to go to school early so she could see it during tutorials.

**Video preparation time.** I asked students about any other concerns which should be addressed to improve the flipped learning instructional model. One issue noted by the students was the preparation time required for their teachers to create an instructional video. The students felt their teacher needed more time to prepare the videos in advance and, to make more for them. Freddie noted, “Another problem is like each video can only be 15-minutes long. You can’t add your own length. Like if she [teacher] wanted to, she would do it for like an hour.” Freddie credited his teacher for desiring to provide as much information in the restricted length that the video would allow, but acknowledged that
with the software she used to record it, 15 minutes wasn’t enough time. He concluded, “You have to include everything quickly and briefly and it takes three hours to record it.”

**Video comprehension.** I extended the question from technology usage to ask the students whether there were issues regarding the clarity of the instructional videos. They replied that at any time there were aspects of the videos that were confusing, they could either contact the teacher through Schoology or write their notes to ask questions the next day in class. They also indicated that the teachers sometimes included additional links with different versions of other teachers instructing the lesson, or expanding the lesson by adding links to real life examples of how the math lesson applies to the real world. Marie described the extended instruction by saying:

She [teacher] would put on Mr. Hamburger, the guy from the math textbook, because he explains it in a different way and she [teacher] knows that some of us won’t get it her way. She [teacher] needs more teachers because everyone learns different. Sometimes, she [teacher] would put the eighth grade math teachers’ videos, Ms. Paulson and Ms. Picot included in our video to explain it their way.

**Research Question Four-Recommendations**

Research Question Four asked: What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol elicited student perceptions regarding recommendations for improving the video delivery in the eighth grade math flipped learning instructional model. The inquiries also focused on whether or not students would recommend the flipped learning instructional model in the future.
Recommendations to improve flipped learning video delivery. I asked students to share recommendations for improving the development, process, or implementation of video delivery to engage students in a flipped learning instructional model. Among the student discussions, all recommendations to enhance the flipped learning model were focused on adding more examples, links, and questions. To add these components, they all agreed that the videos should be longer. They suggested that improving internet accessibility would be an improvement. Finally, they also strongly urged that other subjects use the flipped learning instructional model, in addition to math.

Natalie indicated it would be good if more examples of solving the problems were included. Jessica reinforced this by saying:

I think something that could be added to the flipped learning is more questions. More things that make you think about what you’re learning. Something that helped you like you’re doing a problem and you understand so you get to the next one. You keep doing those problems fine and understand it. When you got those you can go back to the first one or the second one, whichever you had trouble on.

One recommendation that was made was that it would be beneficial if other content classes would provide instructional videos. Marie stated, “I think to improve flipped learning, other subjects could start using it so that we don’t have everything in our brain.” Teresa added, “So like in Science or English, if you’re not getting something you watch the video on, like how do you use a comma or photosynthesis.”

Future usage of video delivery in flipped learning. The final question I asked the students was whether they felt it was beneficial to continue using this method of teaching in the future as a means to increase student engagement. The students expressed
that flipped learning built confidence, provided more individualized attention from their teacher, and allowed them to work more on projects with their classmates.

The students enthusiastically replied that they felt the flipped learning model was beneficial and that it should be used by other educators. Freddie eagerly explained his viewpoint regarding the flipped learning model:

They should really try this. It’s going to help students. I mean, you are going to feel good about it when it’s test time. You feel confident like, it’ll help you engage more in your learning and class time you always get help. She [teacher] would make us walk around and do some problems. Doing all that stuff instead of just working on that big pack of homework at home. You just learn your lesson and get to keep it forever.

Jessica emphasized how using video delivery in a flipped learning instructional model made better use of class time when she said:

People should try it; it is a really great process to go through. It helps you. It benefits not just the students, but also the teacher. It helps us not to be so stressed about this one subject because in class if a certain person doesn’t get it the teacher can help. There are not 20 teachers to go around for each student and the teacher usually can’t be independent with just one student. She [teacher] has to teach everybody. That is why the flipped learning is good; it gives us more of our teacher’s time in class.

Freddie reiterated the improved use of class time, when he said:

I mean there’s class time sometimes you don’t understand it and the teacher ask a question and then poof, a moment of silence. You don’t know what to say. You
don’t know what to do. You don’t know how to explain it. But with the flipped learning all you got is yes you know. You already know what to do before she even tells you the next step. You’re ahead of the game.

Marie emphasized that flipped learning was beneficial in this manner:

I think flipped learning is really beneficial. Once you start using it because it not only saves class time, but it helps kids like not having everything in their brain like at once. It takes the stress away. Then you don’t have to worry about catching up with other kids because you can go back and learn it at the pace that you want to.

Freddie also pointed out the benefit of having more active time to complete work in class. He stated:

When you have the flipped learning you learned that at home, and in the class you spend the whole time on your project. You get extra credit because you do it faster. And then you also learn the lesson so it’s like killing two birds in one stone.

Jessica described the benefits in this manner:

It helps us in many ways like I don’t know how to say it. It gives you a different meaning, not meaning but a sense of mind. A different perspective on something or in a certain subject, like you haven’t been taught back in the past and you can start learning to, not instinct, but do the habit of doing a certain thing like doing the tic tac toe for the multiply integers.

I asked Carlos to offer his thoughts on the benefits of video delivery in the flipped learning instructional model and he stated:
In my opinion, I would recommend this and I hope this goes nationwide. Everybody can get this from one point to another, from coast to coast, because it does improve your learning. It helps the teachers’ progress. It helps the students to learn it. You can. They can rewind it. Look at it. Learn it. Do it again if they don’t understand it. Because you have the material right there in the video and you don’t have to go to your teacher and ask for help. Instead you already have the video. So you can you know your stuff from there from what she put in the video. The students also shared their academic growth in the process of learning from video delivery in the flipped learning instructional model. Marie opened up the discussion by saying:

I want to say that one way that flipped learning helped me with. Before the flipped learning my grades were not steady. Like they were go up but then they will go down, but with flipped learning they gradually got higher.

Jessica also commented:

Not having the flipped learning before, my grades were very up and down. Like one week it was 90, the other week it would be like 78 or something like that, and no one wanted to have those kinds of grade. Having flipped learning those grades, they stayed constantly high and they never changed.

Freddie discussed the improvement in his grades:

My Mom, she saw a really big improvement in my grades and my brother saw me doing the flipped video and said like, “We don’t even do that, and I’m in high school. My [his brother’s] teachers don’t even know about this. You’re so young,
yet learning this, get extra credit,” and my Mom she was like, “Wow that’s great. You’re doing awesome.”

Natalie recalled what learning was like before participation in a flipped classroom with video delivery. She noted, “Before the flipped learning I was like really lost. I didn’t know what was going on but then the teacher got the videos and I started learning more and I got better grades.” Carlos shared his experience by saying:

When I first start the seventh grade year I didn’t understand it at all and in the first semester when they introduced the flipped learning in December, I started getting a hang of it and by the second semester, just like how it says, I already flipped my grades over because at first I didn’t understand any of it. When we started the flipped learning, I started understanding it. My grades started going up and higher and higher and then just at one point where they stayed constant, and I understand it all.
Chapter V

Student Focus Group Two

The second focus group was comprised of four students between the ages 13 to 15. There were two boys and two girls in the eighth grade that participated in this group. Among the group, all students were Hispanic. For the two girls, Spanish was their native language, but also spoke English. According to the students from focus group two the teacher, Mrs. Picot, gave the students one to two videos a week as part of their video instructional assignments. Alfred indicated, “We used the flipped learning videos once to twice a week. She [teacher] would follow up on the video; do two lessons, and then another video then with two more lessons.” According to the students, sometimes more time was needed to review and reinforce the video instructional lesson. As a result, there would be only one video for the week.

Research Question One – Technologies Supporting Video Delivery

Research Question One asked: What technologies support video delivery to engage students in a flipped learning instructional model? Questions from the guided protocol were designed to elicit student perception responses about access to the internet, electronic devices, and other technologies used outside of class to support engagement when receiving math instruction through video delivery in the flipped learning instructional model.

Internet and electronic devices. I asked the students if they were able to access the internet and use any other electronic devices besides their school issued netbook to view instructional video delivered lessons at home. Two out of the four students did not have internet access at home. Alfred stated, “At my house, we don’t have any internet or
Wi-Fi at home. I’m able to use my Dad’s iPhone, go somewhere like McDonalds, or somewhere that I can use my netbook.” He described that all of the instructional videos were uploaded in Schoology and he was able to download them on his netbook as needed.

Aaron indicated that he had internet at home and didn’t have any problems with lack of computer usage since he had his school issued netbook. Veronica had the least amount of technology available to her since her parents did not have a smart phone, computers, or internet at home. She stated, “I would just go to the library. To the public library and just watch my videos there and do my homework there.” I asked if she was able to download the videos before leaving school and she indicated that she was able to do that, if she remembered. Willow stated that she had internet at home and had no issues watching the videos at home.

In addition to being assigned the instructional videos at home, the students in this focus group were also actively involved in using Think through Math. This was an internet computer program created for students to independently work on math problems in their grade level. It provided student data analysis of performance for the students to monitor progress and reinforced their skills in problem solving. It was also a significant part of their grade. Schoology was a learned management system (LMS). This program was used for students to post assignments, access calendar dates, and communicate with their teachers and in some cases with other students on the message boards.

**Technology outside of school.** I asked students to describe their experiences with using technology outside of school to view their assigned video lessons. This question was an extension of their general technology usage, beyond the campus. Alfred said:
Even though I don’t have technology to use at home, I would probably still be doing my Think through Math lessons on my Dad’s phone. If I can’t use his phone I could always download it or just use the paper notes and go on from there.

Aaron answered, “If my Wi-Fi is down I just had to use my phone or my Dad’s phone to be able to do my things that the teacher assigned me to do.” Veronica indicated that she would take notes and either download the video or come to tutorials the next day. Willow agreed with what Veronica said.

**Research Question Two- Benefits of Video Delivery**

Research Question Two asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand the students’ perceptions of their experiences, engagement levels, math benefits, and how class time was used during implementation of the flipped learning instructional model.

**Experiences with the flipped learning instructional model.** I asked the students to describe their experiences being taught through the flipped learning model instructional videos.

The students specifically mentioned the use of humor in the videos and Think through Math added to the value of their experiences, Alfred noted:

I feel good that we have this type [flipped learning and Think through Math] of technology to teach us and to keep expanding our learning and to let us learn more and do better in math, especially with the Think through Math. We have to think a lot on there. Ask a lot of questions. And with the videos we have time to
laugh at some of the parts in the video. And then a time to get serious and take notes in the videos so we could learn.

Aaron agreed with Alfred indicating that it helped him to learn, and that the videos were good to go back and use as he needed to review. He stated:

I think the flipped learning is a very good tool. It’s like having your teacher there at your house teaching the steps and things with your learning. The next day you come in and you already know what you already know. The teacher gives you things and you already know what to do. So you can turn on the video from the day before and it’s a good tool to have when you’re at home, instead of having to sit there just being lazy.

Veronica added to Aaron’s comment saying, “I think it’s better for us kids because I mean it’s technically having the teacher at home teaching what you know.” Willow noted that as she watched the videos at home, it caught the attention of her father. She explained:

Well, like they’re saying, that it’s the videos that I was excited about. Sometimes at home I’d laugh and like my Dad was like, “What are you laughing at? What are you doing? Oh, it’s a video,” and he would say, “Let me see.” And he would stay with me and he’s like, “Oh, so this is what you’re learning.” So I think it really helps you.

Alfred added:

Since people are already on their phones or on their computers doing what they want to do, or looking up on something. You might as well take the time to watch these videos and see what you’re learning and actually do better in class.
**Engagement levels.** I asked the students whether they believed their levels of engagement in learning from the flipped model were higher, lower, or the same as traditional direct instruction. All students agreed that the flipped video lessons added to their engagement level, and helped to increase their learning. Alfred elaborated when saying:

> It actually made engagement higher because right now we’re moving at a faster pace than what we’re doing when we compare to traditional learning. It used to be you couldn’t take notes as well, and it’d be probably a week before moving on. But with the flipped learning videos it’s one day. And then another and that’s it. We just take a quiz. If you do good then you’re learning more. If not you go to the tutorial and then you learn to master it better.

The rest of the students in the group agreed with Alfred’s description and reiterated that being able to move at a faster pace was a benefit and that it helped their level of engagement.

**Math benefits.** I asked the students whether they believed the flipped learning experience was more beneficial for their math education. Alfred started the conversation by saying:

> I think it’s more beneficial because you’re getting to go at a faster pace and learn at a faster pace. And you spend like more things you can put in your brain and just learn. I don’t think it’s difficult at all. When they follow up with the instructions of the flipped learning, it’s not even hard to get on or do the instructions that you’re supposed to do. It’s just learning as fast as you can and getting as much knowledge that you can get.
Aaron added on to Alfred’s response, with:

It’s more beneficial because you are moving in at a faster pace. So it’s kind of like getting into the lesson, but in just like three days. So you’re already learning so many things in just three days about this one specific subject. And it’s just faster and faster and then you just move on and move on. You get better at what you’re doing in math.

Veronica also stated:

I think it’s more beneficial because you get to a higher level at your Math skill. It’s better because when it is taught at school, with the teacher in the class, it takes you about a week to learn the whole lesson, because some people don’t get it, and other people do. And it holds back the people that do get it. That they do get it instantly, before [video delivery] they don’t get it.

Aaron followed up by saying:

It’s like whenever some people will get it [math concept] and some people don’t. You had to stay with the people that don’t get it. You can’t move on as much as you want to. So teachers are like having a hard time to move on for people that don’t get it. They had to stay with the people until they get it and the people that already get it have moved on, and want to learn different things.

Willow finally answered by saying, “Yes, I think it’s more beneficial because you learn like it’s faster and like already it’s into us. I’m already getting it. Move on. Go to the lesson and start another lesson.”

**Time in class.** The students were asked to describe what time in class was like when being instructed through the flipped learning model instructional videos. Most
indicated that class time was for working on the problems followed with daily quizzes.

Alfred said:

We’ll continue on the lesson and keep working on it until we get it right. And then if we still don’t get it she [teacher] would show us how and tell us to go back to the video and watch it again. But this time take notes why you’re doing it.

Aaron confirmed this by saying:

We used to take notes when we watch the video to understand it. And then the next day we’ll come in. She’ll [teacher] do it again make us learn it. Refresh our memory and we just learn it again. If we don’t get it, we just go back to it and watch the video and take more notes.

Veronica simply agreed with the boys, while Willow deviated slightly in her perception of time spent in class saying:

No. I had something different. For me, like when I got to class I think it was easier, because after seeing the video at home when I got to the class it was like easier. Because I was ready. So, I just needed to work out a few problems and that’s it.

When further pressed for more details about their class room experiences Alfred added:

We’re able to talk more to her [teacher] about the video if we had questions or anything. And then we’ll work out a couple of problems before class started. Or while class started and then after that we’ll be assigned to take a quiz to see how well we know.

Aaron said:
It was like we take a quiz to see how we’re doing. And like she [teacher] sees how we’re doing progress on our quizzes. She’ll pick any individual people to come to tutoring and she’ll help us out on that specific subject.

The girls had nothing more to add at this point.

**Research Question Three- Challenges of Video Delivery**

Research Question Three asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand student challenges related to internet accessibility, video preparation time, and video comprehension.

**Internet accessibility.** I asked students about technology usage outside of school and one noted concern was internet availability. Students did not have any conclusive statements that indicated there were any challenges related to not being able to access the internet. They all agreed that there were little problems being able to use the internet to view the instructional videos.

**Video preparation time.** I asked students about any other concerns which should be addressed to improve the flipped learning instructional model. In addition I questioned the students about whether the time the teachers had to create the videos was a challenge for them learning from the flipped instructional model. Again, the students indicated that there were no problems that they observed in regards to receiving an average of two videos a week.

**Video comprehension.** I extended the question from technology usage to ask the students whether there were issues regarding the clarity of the instructional videos. One
student, Veronica explained that there were times that she didn’t fully understand the videos her teacher made and that more examples would have been helpful.

**Research Question Four—Recommendations**

Research Question Four asked: What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol elicited student perceptions regarding recommendations for improving the video delivery in the eighth grade math flipped learning instructional model. The inquiries also focused on whether or not students would recommend the flipped learning instructional model in the future.

**Recommendations to improve flipped learning video delivery.** I asked students to share recommendations for improving the development, process, or implementation of video delivery to engage students in a flipped learning instructional model. They all agreed that the videos could be improved if the teacher had shown more examples, and if the videos could be longer. Veronica was the first to mention that she would like more examples, because she didn’t always understand the videos. She stated, “I would like to add, is to have more questions of math that I could do. Because sometimes I don’t get the videos.” Willow also agreed that she would like more examples. Alfred explained:

> It could have been longer because like, students don’t always understand. It could provide more examples so they could give them more knowledge of how to do it, and how to follow the steps of the problem or anything. Just keep expanding. And you’re expanding the videos so it could be longer. Just give more problems.

**Future usage of video delivery in flipped learning.** The final question I asked the students was whether they felt it was beneficial to continue using this method of
teaching in the future as a means to increase student engagement. All of the students eagerly agreed that it was very beneficial and found it to be a positive experience in their learning.

Alfred described his viewpoint when he said:

Because the more technology goes on, the more learning you can do. Whether it’s flipped learning or Think through Math [web based software] now. It could be something better later, as well as Schoology now, and something better later. It could just keep going. And it could increase learning by a bunch because I know it increased for me this year. Flipped learning, Schoology, and Think through Math made things faster and easier. You’re going ahead of the class and trying to get as much lessons you can get done. And the more you get done the more you know.

Aaron reinforced Alfred’s comments by saying:

I think they should just stay with this flipped learning thing. Because it’s going to help kids in the future who struggle in other subjects. Not just Math, but other subjects. Flipped learning and Think through Math will help kids. And Schoology helps teachers get grading done faster, and just helps them. Help teachers to help us. And as a result kids improve in our education and the subject.

The two girls indicated that they agree with the boys and had no further comment to add.
Chapter VI

Student Focus Group Three

Focus group three consisted of five female students, all who were Hispanic and in the eighth grade. The girls’ ages ranged from 13 to 15 years old. Of the group, only one student demonstrated limitations in her proficiency in speaking English. The girls indicated that they could speak both English and Spanish, and they were all, with the exception of Alexis, very fluent in speaking English, Alexis indicated that she could speak English but there were some aspects of the language that she struggled with.

When I questioned the group about the frequency, their teacher, Ms. Paulson, used the flipped learning instructional videos as part of their home assignment, the group all agreed that the teacher presented one to two videos per week. There seemed to be consistency among all five girls that the teacher, Mrs. Paulson, regularly gave a video on Thursdays and occasionally on Mondays as well.

Research Question One – Technologies Supporting Video Delivery

Research Question One asked: What technologies support video delivery to engage students in a flipped learning instructional model? Questions from the guided protocol were designed to elicit student perception responses about access to the internet, electronic devices, and other technologies used outside of class to support engagement when receiving math instruction through video delivery in the flipped learning instructional model.

Internet and electronic devices. I asked the students if they were able to access the internet and use any other electronic devices besides their school issued netbook to view instructional video delivered lessons at home. Among the students all had at least a
smart phone or iPad to use for viewing their assignments. Only one girl, Alexis, indicated that she didn’t have internet access at her home. Alexis apparently could use an iPad at other locations, but did not have internet at her home.

Gretchen stated, “Our internet goes fast and it’s really easy to connect to the internet. But I didn’t really use it on any other device because I like to separate my social life from my school.” Melinda also had an iPad that she could use, as well as the school netbook. Eliza described her technology usage by saying:

I use my netbook and my cell phone also because I think my cell phone is really easy and I am really comfortable with it. It is always right there in front of me. And I have my notes so I can go to different locations like Starbucks or McDonalds and do my work there. I like it because I’m comfortable and have fun with my headphones. It was really easy.

**Technology outside of school.** I asked students to describe their experiences with using technology outside of school to view their assigned video lessons. The students indicated they were provided several options when there was limited access to the internet. The students explained that they could either find a public Wi-Fi location, or they could watch the videos before or after school. In addition they told me they could download the videos directly on their netbook.

Alexis stated, “I’d like to add that there are some people who don’t have access to the internet. So like others said, we can go to like McDonalds, Starbucks, and the library or just stay here to watch the videos.” Alice added that students could also download the videos either during morning tutorials or after school. Melinda stated, “I also want to add
if one of our friends doesn’t have internet access at home, we can let them see off our devices, so that they can be beneficial for me and the other person.”

Eliza expressed how she enjoyed the freedom of watching the videos at different places, she said:

Yes. Especially at Starbucks and we’re having coffee and a little bread there while watching the video, and staying busy doing your work. It’s just like a little focus place. Like it’s your own little world. Like an education room.

She continued to point out:

I’d like to say that there is no excuse from not watching the videos. Because there are multiple selections like Starbucks, McDonalds, or stay up at school, or go to tutorials in the morning. There was no excuse, and if you didn’t watch it like you’re lazy or you’d rather do something else. It just slowed down our time in class, but otherwise this makes our time in class really faster.

A follow up question was posed to the students about whether they were encouraged to work together outside of school to discuss their assignments. All of the girls agreed that it was a part of their expectations with their teacher, Mrs. Paulson, to communicate with each other, as well as with her when they had questions about their lessons.

**Research Question Two- Benefits of Video Delivery**

Research Question Two asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand the students’
perceptions of their experiences, engagement levels, math benefits, and how class time was used during implementation of the flipped learning instructional model.

**Experiences with the flipped learning instructional model.** I asked the students to describe their experiences being taught through the flipped learning model instructional videos.

Alexis indicated that not only was it beneficial for her to learn from watching the videos, but that her mother, who only spoke Spanish found the videos to be useful. Alexis explained:

> My advantages would be that I can watch my teacher at home. With the videos and my Mom trying to understand everything in English, even math. I could show her the video and translate it. That way she could understand and not get confused. Not mispronounce the words or laugh at her because she’ll get mad at me.

Gretchen also made a connection with how the videos drew the curiosity of her brother as well, saying:

> I agree with Alexis because everything ran smoothly, but then again, Mike, my brother liked to watch the videos even when he didn’t know what it was about. Once I found out I pushed him away because he had paused the video. But yes. The flipped learning is good. There were no barriers. Advantages were really good, connecting, and teaching things. It was good.

The discussion about how the videos were influential on other family members was an added aspect of the responses the girls provided. They also described how the use of humor and videos that related to their school was an advantage to how they learned.
Eliza noted:

The flipped learning had many advantages. Not only was it educational but the teachers were also entertaining. They’re really funny. And I had to agree with Gretchen. How our family members like to watch them. So like my sister. She always bugs me while I’m trying to do a problem and watch the video. That it was also really entertaining the way our teachers show us the problems.

Alexis followed up, and stated:

I like to add to Eliza’s comment about the way the teachers explained it. It was educational and entertaining. It’s fun for us to watch it, because it’s give us a fun way to learn, not just the boring way.

Alice made the group laugh when she described her experiences when her little brother interfered as she watched the videos, she said:

As Alexis was saying it’s educational and entertaining, but as Gretchen said about her little brother trying to understand it, but he doesn’t know anything. My brother was there every time I’m watching the video when I was in my room. My brother just comes in and bugs me because he just does that. Even if I’m working on my homework, or watching the video when I’m trying to learn. He just comes in and distracts me whenever I’m trying to learn all the time.

Melinda added:

So the advantage was that the teacher made it fun for us to watch, so that we could remember it. And they did funny things. And it was easier for me to memorize it because I remembered like the funny thing that they did. And that would help me remember the math things. So that really helped me.
She also pointed out:

I think it’s really helpful because they did like catchy songs. And then they incorporated some celebrities on it so that made me also remember what they had said on the video. To help me on quizzes and stuff like that.

Gretchen gave the example:

I think it primarily made it easy when they used humor. It helped us connect like with math and things. I remember this one [video] when they had Channing Tatum in it. It helped me remember how to find the volume and the area of the triangle.

Eliza elaborated on how the use of humor, which included the video footage of one of the school’s basketball games helped to trigger her memory when she was learning a new skill. She described it saying:

I’d like to add to what she said. The advantage that caught our attention, and a good kind of example is the one time they recorded the guys’ basketball game. Which catches everybody’s attention on the video. That video got probably the most likes on Schoology. [LMS]. It caught the boy’s attention so much. And it caught my attention because the teachers did some of the funniest things. And it did catch our attention, but then they moved it to learning. Which was like everybody was pumped, so of course they wanted to learn. So it just really caught our attention, but it wasn’t a disadvantage. It was entertaining.

When discussing this part of the interview, the girls were very animated and wanted to continue to share their thoughts about the videos the teachers made. Alexis continued by saying:
I’d like to add to Eliza and Melinda’s comment about catching our attention and being funny. If it was a funny video. The next day we would talk about it with our friends to see what they learned, what we thought about the video, what was funny about the video? And if it really helped us in the topic.

Alice added her thoughts by saying:

I would like to add to Eliza’s and Melinda’s comment. It does catch our attention easily because it makes us laugh. It was just interesting to watch. Like Alexis said. We can talk about it. See what’s funny. See what we learned and all that, but most of the time when it’s fun to watch it’s because sometimes they make the things that we’re learning fun and how they describe it. Like the one about the basketball game. Like they catch our attention because most of us are focused on different stuff other than school.

I asked the students to describe how the video of the school basketball game was used to learn math and they shared that it described circumference and sphere. Eliza said:

The video was on circumference of a sphere, so you know the basketball it’s a sphere. They used those tools like the sphere and then they had people say, “This is a sphere.” And this other teacher would like started bouncing the sphere. It was really funny.

Alice added:

Like Eliza said, it would like come out as sphere. Sometimes they just show us the formula with sphere and then they try to find one. So we could easily get the problem. It was fun to learn it like that. It was like here’s the circumference and the sphere. Wow! Because it’s about the sphere.
**Engagement levels.** I asked the students whether they believed their levels of engagement in learning from the flipped model were higher, lower, or the same as traditional direct instruction. The responses related to engagement levels were all favorable, as the girls felt the videos increased their engagement. The students felt that it helped them improve their grades by having the ability to watch the teacher instruct in their own environment, as often as the needed, within the comfort of their own home.

Alexis began by saying:

The engagement level I’ve seen through the past three months with the flipped program it’s been higher than most levels without the flipped program. Like some students in my class were failing before the flipped program and after the flipped videos they were passing. Because the video really explained things to us. It didn’t only show us how to do it. It explained slowly to make sure we’re caught up.

Gretchen agreed with Alexis and added:

I agree with Alexis because the flipped program would help us go one on one with Mrs. Paulson. And in the past months I’ve seen people get more engaged. Higher grades were being made. And it showed us how to do it. Not just showing them the board but was able to learn over again if we need to be reminded.

Melinda emphasized that she like being able to learn from the videos because she had the teacher one on one within in her home. She said:

I feel that this flipped learning made my engagement learning higher. And it explained to me how to work out the problems. And it was kind of like a one on
one with me and the teacher, except she was on my computer screen. And then the next day we could ask questions if we had any.

Eliza emphasized that she felt comfortable and that school became easier for her when she had the videos to watch, saying:

I totally agree with Alexis, Gretchen, and Melinda. We did well. I think my engagement did go higher with flipped learning, because like you would feel so comfortable with coming to class and knowing already what to do. You could answer questions and you can see the difference with the people that didn’t get to watch the video. Like how they would struggle. Like they wouldn’t get it as fast as I did, and I thought it was really easy but they didn’t watch it so that’s why they were like, “Why it’s this? I don’t know.” I think it’s really cool.

Alice indicated that there was a difference in what students understood when they would take time to watch the videos more than once, she stated:

I would agree with Eliza, Melinda, Gretchen, and Alexis. For most of the people in my class like they would have problems about the lesson and they watched the video again. Then they understood it. Like what we’re talking about. What we’re learning. So it’s like really helped learn fast. So most kids would put in the effort, if they don’t get it, but when they watched it again the video really helped them so they understood it better.

Math benefits. I asked the students whether they believed the flipped learning experience was more beneficial for their math education. All of the students overwhelmingly found it to be a benefit to how they were learning math. Alexis began by saying:
The flipped learning model has been more beneficial for me in my math education. It is not only like I said, and like Eliza said earlier, it’s not only funny. It’s entertaining. It catches our attention. It just explains to us what we’re supposed to do in that topic. How we’re supposed to do it. And like the rules, and not trying not to get confused. Making our work not so hard.

Gretchen pointed out:

I think it was very beneficial because in this era of technology I think everybody wants to learn more from technology. Because we can trust technology more than do humans. I think that’s weird but I guess we do. Like on Google [using internet search engines] on stuff. Yes, I think it helped me in my math. And a lot of kids math because we’re learning one on one with the teachers. Like I said many times throughout the conversation and you know I like it a lot.

Alice added:

Like Gretchen said, most kids are focused more on technology instead of each other. Because since this is like the 21st century that we mostly use technology. Sometimes we use technology more than our social life though mostly on Facebook technology now. But sometimes we talk to each other about the problems. Most of the times on our technology. Let’s say about the one on one. It feels like we’re having our own conversation with the teacher. But the teacher is on the computer screen explaining to us what to do, helping us to learn. Telling us to take notes whenever we’re at home.

Melinda stated:
I found the flipped model learning very beneficial because it really helped me on my math. And how to memorize things that I didn’t catch in the class. And also like Gretchen and Alexis said that we’re always on our technology anyway. So it’s helpful that our homework is already on devices so that we can already watch the video since we’re already on the internet.

Eliza followed up saying:

In my opinion flipped learning was really beneficial because it created a special bond with our teachers. Also, I think in this generation, technology is huge in our lives. And it will get bigger and bigger. And we’ll grow with it ourselves. I think this flipped learning will especially benefit us in our future.

**Time in class.** The students were asked to describe what time in class was like when being instructed through the flipped learning model instructional videos. The girls indicated that class time was used to review, work problems, and to be assessed on what they learned through quizzes. Based on the girls perception of class time it was used more for basic instructional applications with an emphasis on taking notes during the video assignments.

Alexis started by saying, “She gave us some problems to see how well we understand that topic. The topic we saw the day before.” Gretchen added:

Yeah. Like the video would tell us to take notes, so we took the notes. And the next day we’ll go over the notes, while she showed us a few clippings from the video. And then we would work out some problems on our own, and take a quiz about it.
Gretchen explained that at different parts of watching the video the teacher would suggest to the students to pause the video and write down notes related to what she taught. Melinda explained, “I agree with Gretchen how we took notes on our video. The teacher gave us the homework and then the next day we reviewed our notes. And then after that sometimes we took a quiz.” Eliza gave a thorough description of how time in class was spent by saying:

Basically when I would go home I would watch the video she gave us. Take notes to write down when we watched it, so I can memorize it for the next day, because Mrs. Paulson would tell us that we’re going to be reviewing and taking a quiz the day before. So when I came to class the next day we got in. She would do one or two problems with us to make sure we did get it. And then she gives us at least seven questions to do by ourselves. And finally she would give us a quiz. And that would be graded and was going to be put in the grade book. That’s how it was and then. The next day we have homework. No. That day after we took the quiz she gives us homework that we got to do some in class. And then we went home and waited until the next video was given to us.

**Research Question Three- Challenges of Video Delivery**

Research Question Three asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand student challenges related to internet accessibility, video preparation time, and video comprehension.
Internet accessibility. I asked students about technology usage outside of school and one noted concern was internet availability. The girls agreed that because they were given so many options to access the videos, including the ability to download them at school, that it had not been a problem for them.

Video preparation time. I asked students about any other concerns which should be addressed to improve the flipped learning instructional model. The students indicated that from their perspective, there weren’t any challenges for them as it was related to the time it took the teachers to create the instructional videos.

Video comprehension. I extended the question from technology usage to ask the students whether there were issues regarding the clarity of the instructional videos. All except one girl, Alexis, indicated that they did not have problems understanding the teacher.

Alexis indicated that while she could speak English there were some words that she struggled with. She stated:

I speak more than one language, but my native language is Spanish. So the flipped videos are sometimes difficult because I don’t understand some of the vocabulary. But since I’ve seen them a lot it helped me to understand the word and the meaning.

Research Question Four—Recommendations

Research Question Four asked: What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol elicited student perceptions regarding recommendations for improving the video delivery in the eighth grade math
flipped learning instructional model. The inquiries also focused on whether or not students would recommend the flipped learning instructional model in the future.

**Recommendations to improve flipped learning video delivery.** I asked students to share recommendations for improving the development, process, or implementation of video delivery to engage students in a flipped learning instructional model. The students’ responses were positive and that the use of humor and real life examples made the videos more relevant. The girls indicated that the instructional videos could have been longer. Alexis noted:

I think it could be improved by adding more funny stuff. More entertaining stuff like soccer. Funny videos or funny music video. I don’t know. Something that would get our attention and get us to learn at the same time.

Gretchen felt that she didn’t have any recommendations on ways to improve the flipped model saying:

The flipped model was good because I finally get the way of math because it gives me the right amount of humor and education that I needed. So I don’t really have any more recommendations to it. It’s really good. I just like the way it is.

When I asked Gretchen about the length of the videos she answered, “She could have gone into more detail explaining how this is supposed to be dealing with math. The video could have been longer but it was good the way it was.” Melinda followed up by saying:

I really agree with Gretchen on how more descriptive examples could be used on how to work out the Math. Since I really like the videos, I wanted to learn more about it. So I don’t know. To me I thought it could be longer because they were entertaining.
Eliza added her thoughts by saying:

I like the way the flipped videos were except they could use more descriptive examples or techniques. But otherwise this was like the way it was is perfect. I love soap operas. But I liked watching them [math videos] more than I like watching my soap operas.

Alice added her comments by saying:

I would like to agree with everyone here. As Alexis said it could be entertaining if like they put 20 videos or more that included our sports game on there, but the rest is like good the way it is. But if they made the videos a little longer it would be worth watching because it was very entertaining to watch.

Melinda concluded by stating, “I found that since it was entertaining and humorous it got to me watch the videos and to be excited to watch them, because it was funny to watch and at the same time informational.”

**Future usage of video delivery in flipped learning.** The final question I asked the students was whether they felt it was beneficial to continue using this method of teaching in the future as a means to increase student engagement. All of the students resoundingly stated that they believe the flipped learning model was a great benefit and that they recommend it to other teachers in the future. Alexis started the discussion by saying, “I think the flipped learning program should continue because of the progress this year with the eighth graders. I think it really should continue because it would increase our learning knowledge by a lot.”

Gretchen added that while she liked having the videos to learn from she also liked having her teacher face to face at school saying:
I agree with her. I like this method more than just having the teacher teach in class. It also gives the teacher to us at home. I want them both. So I can like not have too much technology, but I want to interact with others. Because I feel like if we just have our laptops we won’t know how talk face to face with somebody. So I want someone giving me detail while I know the basics of it.

Melinda commented, “I agree with both Gretchen and Alexis on how this is really beneficial. And I think that it is more helpful than giving us paper homework because they’re actually explaining it to us and making it funny too.” Eliza found that the balance between the videos and the class time was perfect and that it would be too much to have any more videos than two a week. She said:

I do want it to continue going on like Gretchen said, but like we can’t do it too much. Like the way we had it once or twice a week was perfect, because we watched it we have it in our homes and talk about it for two or three days. Like we can do it for one day. Do the quiz then do a few more problems to make sure we get it. And we move on to the next thing. So doing it probably twice a week, not over doing it. There’s a limit to technology of course. And the videos are in a form that holds my attention the way I grew as a learner. I do recommend it to keep going.

Alice expressed her opinion saying:

I agree with everyone because I do have a point. We have to have a limit with technology, so we can interact with other people. But like I said, with the flipped learning I want it to continue because it’s helpful and we learned better than how we have it in the class.
Focus group four was comprised of two regular eighth grade teachers and one seventh grade Pre-Advanced Placement (Pre-AP) teacher who was teaching the eighth grade curriculum to her advanced students. Each teacher was interviewed individually, and was asked the same questions according to the guided protocol related to the research questions. The two eighth grade teachers, Mrs. Picot and Ms. Paulson, worked more collectively in the creation of their videos and how they used their class time with their regular students. Mrs. Picot was Ms. Paulson’s mentor and was the lead teacher in the development of the content and curriculum. While Ms. Paulson was a first year teacher, she did have a strong talent in technology and was instrumental in the creation of the videos.

However, the seventh grade Pre-AP teacher, Mrs. Horner, designed her own videos, and her daily class activities varied in the depth and student collaborative assignments, than that of the regular eighth grade classes. This was attributed to the fact that in Mrs. Horner’s class, the students were accustomed to working in advance levels of rigor and were overall more focused on their lessons, which included watching the videos as well as working together with their classmates.

The teachers were all asked how frequently they used the flipped videos lessons in their classes. On average, the teachers presented two videos a week for their students to watch. Class time was appropriated differently between the two eighth grade teachers and the seventh grade Pre-AP teacher. Because the Pre-AP students were accustomed to
more rigorous work, much of the class time was spent with project based assignments and student collaboration. The eighth grade teachers also indicated that their students were encouraged to collaborate when solving problems, however, some of the class time was used to reinforce skills and allow teachers more individualized time to work one on one with their students.

**Research Question One – Technologies Supporting Video Delivery**

Research Question One asked: What technologies support video delivery to engage students in a flipped learning instructional model? Questions from the guided protocol were designed to elicit teachers responses about access to the internet, electronic devices, and other technologies used outside of class to support engagement when receiving math instruction through video delivery in the flipped learning instructional model.

**Internet and electronic devices.** I asked the teachers if their students were able to access the internet and use any other electronic devices besides their school issued netbook to view instructional video delivered lessons at home. In general, the three teachers indicated that there were no significant problems with students finding ways to access the instructional videos. The teachers made sure that alternative measures were in place such as downloading their videos prior to leaving school, or to provide viewing opportunities either before or after school in the event the student had no internet access outside of school.

Mrs. Horner provided a detailed response about student technology accessibility. She said the following:
Since it was on Schoology [Learning Management System] they could use another computer to download the video. For those that didn’t have internet access and they still have their netbook all they have to do is download the video before leaving school, because you didn’t have to have internet for that. And then for the other electronic devices there’s an app on the smartphones for Schoology. So a lot of them have that and you don’t have to have internet access for but it’s a smartphones too.

Mrs. Horner added:

I only had one student that didn’t have internet access and it was never issue because she always downloads the video ahead of the time. But their experience was good. They always watch the videos. The majority of them, and they came to class ready to work.

Ms. Paulson indicated that there were some students who didn’t have internet at home. However, she also stated that the videos were posted both in Knowmia, the software used to record their videos and uploaded in Schoology, but that she would also put it on YouTube. She described this saying:

Not all my students were able to access internet at home. But the ones that couldn’t they go to McDonalds or they went to other places. In addition, I asked students, “How many of you can watch the YouTube videos?” All of them of course would raise their hands. And then I said, “Okay if you can watch YouTube videos then you can watch the videos that I made on Knowmia, because I would post it on YouTube.” And so basically they could watch on their phone because
the majority of them, even if they don’t have internet, they have iPhones or some kind of other mobile device.

I asked Ms. Paulson if she enabled students to download the videos while they were at school, in case they had no other way to get on the internet and she indicated that she would arrange for them to do that as well. I followed up with another question asking Ms. Paulson if she ever got feedback from her students about the technology opportunities, and did the students share anything back with her how they utilized their technology. She answered:

Yes, many students will tell me they would watch the videos in group sometimes. And not big groups maybe like two or three with their friends. They go, “Oh I’m having a homework party at my house.” I’d answer, “That’s great. It sounds fun.” And then I told them if ever they have questions to email me on Schoology [Learning Management System] and I usually get back to them right away because it’s on my phone. I have an app on my phone.

Mrs. Picot pointed out that internet availability was an issue for some of her students and that she and Ms. Paulson had to devise a way that those students would be able to watch the videos as well. She explained their solution by stating:

Well, what we did I guess I have about an average of five to six students that didn’t have internet in each class, which was a problem. So we made sure that we found ways that they could download the videos while still at school. Like we used Knowmia to record and upload the videos and put them on Schoology. That way students could get on at school so they were able to access the information, and to be able to download it to their computer. So when they first walk in to the
class if we knew we were having a flipped video we would put up the
instructions. Tell them, “Open up your netbook and if you don’t have internet and
go ahead and download the videos to your net book so that you have it.” And if
they didn’t have a net book we told them that they are required to come in for
tutoring either after school, before that afternoon, or the next morning so that they
were able to watch the video.

Sometimes you know in the morning other students will let them watch it.
I know that I’ve seen other students sharing their net books to show them the
videos or they would share the net books with earphones in tutoring if they didn’t
have one. So they were always able to find a way to use it. The students that
didn’t have internet were always able to access it and download it also. We really
didn’t have a lot of issues. If they didn’t watch it it’s considered they don’t want
to watch it. It wasn’t because they didn’t have access to the video.

**Technology outside of school.** I asked the teachers to describe their students’
experiences with using technology outside of school to view their assigned video lessons.
I asked Mrs. Picot to comment on whether she was aware of what type of devices the
students had available besides their school issued net book. She answered:

There are some students that were limited. We also do, Think through Math, in
our school so their having to access the internet on a weekly basis was there even
before the flipped classroom came. So a lot of that complaining came from the
kids that don’t have internet. They found ways around it. A lot of my students I
know were able to use their phones to watch the videos. And they were actually
really clear. And I had some students say they would rather watch them on their phone than they did on their net books.

They did have computers at home, usually one. They didn’t have more than one. But yes. They definitely at least most of them had a way to get on-line. Even if they didn’t, I know that there’s a lot of places around that they said they could go to. You know. McDonalds or Starbucks where they wanted to go and watch the videos also.

**Research Question Two- Benefits of Video Delivery**

Research Question Two asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand the teachers’ perceptions of their experiences, engagement levels, math benefits, and how class time was used during implementation of the flipped learning instructional model.

**Experiences with the flipped learning instructional model.** I asked the teachers to describe their experiences teaching through the flipped learning model instructional videos. This question served to elicit how the teachers felt about the process of instructing through a video medium. After the teachers became more familiar with the software programs and understood the integral aspects of creating and presenting the videos their comfort level increased.

For example, Mrs. Horner responded by saying:

At first, I thought it was pretty hard because it took a long time to make the videos. Pretty time consuming. But once I got used to it and more importantly saw the value that the students had. They really love the videos. So it was worth the
time that it took to make the videos. I think it was well worth the time that it took.

And I thought it was a very positive experience and I plan to do it next year.

Ms. Paulson indicated that she was nervous in the beginning but in time her confidence grew. She stated:

In the beginning I was kind of nervous about doing it in general. I know how I am, the person that wants things to be perfect. I remember going to the conferences and them telling us, “If you are one of those teachers you need to stop being one because you are going to make mistakes, and it will be on a video and you’re just going to have to accept that.” And then I found after the first and second video when I made a mistake the students actually thought it was funny. So I wasn’t doing it on purpose, but since like you know every single one points out you made one mistake. And I was like, “I’m sorry.”

I asked her if she thought that when she made mistakes did this somehow work to her advantage and she answered:

Oh, yes, and so it made me feel the best times of my teaching for the first year for 8th grade was definitely when I was doing flipped classrooms. It was so much work, but it was well worth it. And I have less students come in after school for tutoring and less students coming in the morning for tutoring, because I got to tutor them during class, which was great. It was very good. So the work paid off.

Mrs. Picot’s experiences were similar to those of her colleague, Ms. Paulson, when she described the process of teaching through the flipped learning model. Her perception was that while there were some very time intensive steps she had to go
through to learn how to implement flipped learning; she thought it was well worth it. She
described the experience saying:

When I first started flipped classroom, I guess even before I started it, I saw it when I went to camp, which is our math conference in the summer time. And I saw a few presentations on flipped learning. And I thought, Wow! That’s great idea but when I sat down to think how am I going to implement this so many things came up. So I was fortunate enough that my principal allowed me go to a flipped classroom conference and I was able to get a lot of programs. And I think the first step of flipped classrooms is what program are you going to use? How are you going to implement it? What are going to be the downfalls of that program? How to get around whether students don’t have internet? Which is the best to use if we’re going to do it this way? What programs are we going to use to make the video? And then, what program are we going to use to put the video on so that students can come and get the video?

So it wasn’t just like, oh here’s the video. There were so many other factors. So when we went to that flipped classroom I know we [all three teachers] were able to spend the day together, trying to figure out, “Okay how are we going to do this?” And we had to call the instructors we saw at the conference to ask them. These are the flaws. Why can’t we download these videos? And she has to tell us, “Well it’s too big you’ve got to save it to this.” I think if I knew the technology side of it better. For people who aren’t technology savvy I think that that’s the hardest part is. Okay. You are making a movie. What program I want to make the movie through. And if I’m going to save it as the file it’s going to be too
big to save. And then if the file is too big how do I convert it to a file that can be saved. And then now I’m going to put it here. Well it can’t be saved here because there’s not enough information there.

So once we figured it out that part of it the making of the video and posting it was the easy part. So it’s the beginning of how you’re going to implement it. I might be rambling. But it’s the beginning of the part that was definitely the hardest part of the flipped classroom.

I also questioned Mrs. Picot about her students’ initial reaction when she first introduced the videos to be viewed at home. She smiled and eagerly replied:

Oh they loved it. They were excited. They were like, “Are you going to make another video tonight?” And I wish I could make a video every night. It’s just it is a time consuming thing. It’s not something you can just say, “Okay let’s go over a lesson in class.” You have to prepare for your video just like you would in class. And then you have to record it. And then adding that little extra flair to the video also takes time. Okay. How are we going grab the kids’ attention so that they don’t get bored with the video? So there were some late nights. But once we started to get the hang of it. It was the kids really I guess that part that made it easier to do. Because the kids enjoyed it so we tried to come up with other ways to make the kids laugh.

**Engagement levels.** I asked the teachers whether they believed their students’ level of engagement in learning from the flipped model was higher, lower, or the same as traditional direct instruction. I followed up by asking for specific examples to support their responses. Each teacher expressed different examples of what they witnessed among
their student’s interactions in class and performance levels. Among the topics described by the teachers that showed evidence of higher engagement was increased class participation, enjoyment of technology usage, improved student learning, and project-based learning.

Mrs. Horner provided an in-depth description of how her students would communicate with each other about the videos and how the level of participation and involvement with projects increased. She stated:

The students’ engagement was much higher. The students were hurrying to get to class so that they could work on the project that we were doing. The students in my later class period already knew what we’re going to be doing, and they would talk to me about it in the hallway before class so they were very excited about the lessons. Their engagement was very high. It was rare that I would ever see a student off task on the day after the video. When we had the videos then they were working on their projects and I would walk around and make sure that they understood it, but the projects were at a higher level. So I had to make sure first that they totally understood the concept, but everyone was excited about it and they were highly engaged in the lesson.

I had the opportunity to observe one of the projects that Mrs. Horner had been working on with her students and asked her for some descriptions about that particular assignment. She was very receptive to share with me her experiences of how her students would work together on a shared project and that without the benefit of providing her instruction outside of class she would not have been able to have her students work on the high level of activities. She shared with me:
Okay so, one of the lessons was about surface area and previously, we had learned about volume. So the project was they had to go to Orientaltrading.com and pick a product. Then they had to create a shipping container for that product that would hold a dozen of them. So they have to find the volume and surface area of one. And then what it would be for a dozen. And then they had to construct the shipping container, and they all picked different sizes, I mean shapes. And they had to discuss it with their group to make sure that it was the best shape for the item because some of them maybe better with a cylinder, some on cube, or rectangular prism. So that was the one that they really liked, was the Oriental trading one.

When Ms. Paulson was asked about the engagement level of her students she answered:

I believe that they were higher. I had more students ask questions whereas in class, most students, they wouldn’t ask questions. Also have more students take notes and they were actually really good notes. It’s not like what I would just write [the notes] on the board or what I put on the video. They would take notes like what I would verbally say instead of what I would just write down.

I asked Ms. Paulson to describe what the expectations were of her students regarding taking notes and she responded, “So they would have double the notes. If they had any questions they would put next to it like a star then highlight. You know, they looked like they’re in college.”

Mrs. Paulson firmly agreed with her colleagues that her students’ engagement level was much higher when being instructed through the flipped learning model. She
expressed that the videos were designed to get the students attention while learning the
basic skills of math. She stated:

I think students’ engagement with the video is definitely way higher than getting them [the students] to do work when they go home, or when they get homework. The students were able to come back and say they enjoyed the videos. I think what we’re trying to do is to make the videos more engaging. I really try to bring in more real world stuff. I know for example, when we were talking irregular shapes, I videotaped my house and went around and was able to show them different shapes in my house and why we would need to know the area of composite figures.

We taped some of the basketball games and we showed them the spheres and we threw some clips of the basketball games in there. The kids really like that. We tried to include a lot of other teachers in the videos to get them interactive. The kids were definitely excited. They would come back to school and they were like, “Miss you got a nice house.” And so they were excited to watch the next video because they wanted to know what was going to be on it. And so, them being excited made them also sit down and take their notes, because there was something in the notes that they were able to do.

I asked Mrs. Picot about her expectations of her students taking notes

She responded:

Yes, they still have to take their notebooks home. And we still had our student language and objectives, all those things that they would normally have in the classroom. They were asked to copy that down in their notes. We did send home
some fill in the blank notes that went along with the notes that were already done. Just like our interactive notebooks we do in our class but we had them do it at home.

**Math benefits.** I asked the teachers whether they believed the flipped learning experience was more beneficial for their students’ math education. All of the teachers agreed that the instructional method of flipped learning was definitely a benefit to student learning. Mrs. Horner stated:

> It was definitely more beneficial, something that will take a whole class period to explain, we were able to do it in the 15-minute video and then answer questions that they have you know the next day. With doing that, it gave us almost a whole another class period each time that we did the lesson. So that allows us to dig deeper with the topic that we were doing and if we didn’t do the video, we would not have been able to do that. There just wouldn’t have been time because by the time I taught the lesson and went over the vocabulary, there wouldn’t have been time.

I asked Ms. Paulson if she felt it was more beneficial for her students to learn their math instruction with the flipped learning model and she answered:

> I believe it’s been more beneficial. There is obviously going to be students who still want to learn the same way they’ve been learning for many years. They are used to paper based instruction and the majority of the time, those are the students who are already very good at math. But I think for them it would be beneficial because the world is changing and they’re going to technology now. And when they get to college everything is cheaper. Their technology as far more advanced.
They will like buy on- line college books now. So I just think it’s going to benefit them in a long run whether or not they want it to.

I also questioned Mrs. Picot if she felt her students were benefiting in their math instruction by learning from the flipped instructional model and she answered:

I think it was more beneficial. I think I got more buy-in from my kids to do work on their own rather than saying, “Here’s your homework.” They weren’t excited about that, but the beneficial meaning for flipped learning was that my students took their own learning in their own hands instead of me having to force feed them. The learning in class aspect was that they would actually sit and listen to me and not get bored from it. They enjoyed it and when they enjoy something, and then they do it more often. So I had students that never did homework, but they would watch the videos. And so to me, that’s beneficial because for a student who take their learning in their own hands and not making me force feed them the lesson is definitely a beneficial thing.

I asked her if she felt that her students were improving academically and she responded:

Yes, I think so. I saw that they were able to come in to class already having the basic, the basis of what we were going to be starting with. Instead of starting all over, the students were already ready to go, and like I said in the beginning, if they didn’t understand something they were able to rewind it and re watch it. So if they were taking notes and something confused them or it was going too fast, I think the ability to pause was also for some students is a big thing with the video. Which as you know right now in class sometimes my kids will go, “Miss you’re going too fast, slow down.” And some kids are like, “Miss you’re going too slow.
You know, we already know this.” But there are some students who don’t, so when they watch that video, there’s none of that. They can stop it or slow it down if they want.

**Time in class.** The teachers were asked to describe what time in class was like when instructing through the flipped learning model instructional videos. Mrs. Horner described her classes by saying:

All right, then. The students and I talked about the video and what they saw. And if they had any questions we went over. There was always like two questions. Independent questions that they had in the video. And we discussed those problems. And then from there we took the learning to a higher level and the students were able to create projects. They were able to create their own rigorous problem solving. Make up questions and have other students and all of the Pre AP classes answer the questions.

Mrs. Horner was asked if she encouraged her students to collaborate together with the projects and activities, at which she replied:

The projects were all in a group. And they were able to work with their group. And you have to know the lesson from the video in order to do the group project. Those that didn’t do the video, there was only few but they had to watch the video and then do the project.

I commented to Mrs. Horner that several of her students mentioned Schoology and asked her if she could elaborate on how that program tied back to her flipped lessons. She described it saying:
Once they watched the video there was something in the video. It was never written but it was orally said so I could make sure that they actually listened to the video. I would have them create some type of problem solving question based off what the lesson was. What it was about. And then they would go in and post that question on Schoology as a discussion board. So the student would post the question. And then another student would get on and could answer that question, as well as post another question. So they were in competition with each other trying to make a harder level question. And trying to make it to where it was really challenging and others couldn’t answer it. They really did enjoy that part.

Mrs. Horner was asked to provide details about additional information she would incorporate into the videos as a tool to get their attention. She responded:

Just like an intro to the lesson, I would find songs or just cute little small clips about the videos. So when we were doing a section on geometry, there was a link about geometry in the world seeing it with buildings and architecture and all of that.

Ms. Paulson briefly responded:

My class time I actually had more time to re-teach if I needed to. More on one on one time students were able to ask questions. We’re able to do more activities, like more scavenger heights. So the time was amazing, I had way more time with the students.

When Mrs. Picot was asked about how her classroom time was spent with students after they watched the instructional videos at home, she stressed that for her
students she wanted to reinforce and review the basic elements of what they watched the previous night. She described this by saying:

When my students were able to watch videos they were able to come into my classroom with the basic knowledge of what we will be doing that day. I didn’t try to make the flipped learning over their heads, so that the learning was too high for them. It was basic. This is where we’re going to be heading today. This is how to do it. And then, when they were able to come to class, instead of having to teach them how we were able to do more engaging activities to show them why it works and do more problems in class. Rather than having to teach in class, and then going home and maybe not still understanding the topic. And I think also the recording part of it. Students were able to tell me that they were able to rewind it. So that when they didn’t get something, instead of being embarrassed to ask class again, they were able to rewind their video and see it again. Which a lot of them said they were able to do.

I followed up asking Mrs. Picot if she allowed her students to collaborate while problem solving in her class and she answered:

Well, when we work problems it’s always interacting with other students. The only time that they are asked to work problems by themselves is when they have their seven minute quizzes. But usually in my classroom it’s always, unless there is a behavioral issue, it’s always collaboration between at least two people.

**Research Question Three- Challenges of Video Delivery**

Research Question Three asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional
model? Questions from the guided protocol were designed to understand student challenges related to internet accessibility, video preparation time, and video comprehension.

**Internet accessibility.** I asked the teachers about technology usage outside of school and internet availability. The teachers agreed that it was necessary to provide alternative ways for students to access the instructional videos. These efforts included arranging for students to download the videos before leaving school or to either come to morning or after school tutorials to watch the lessons.

**Video preparation time.** I asked teachers about any other concerns which should be addressed to improve the flipped learning instructional model. The teachers all agreed that it was challenging to invest the large amount of time needed to prepare their videos, but as they familiarized themselves to the process it became easier to accomplish the production of the instructional videos.

**Video comprehension.** I extended the question from technology usage to ask the teachers whether there were issues regarding the clarity of the instructional videos. I asked Mrs. Horner whether any of her students had any challenges when watching her instructional videos at home. She indicated that sometimes students would ask her the following day to explain the meaning of a certain term, or clarification on how she explained something in the video that they didn’t understand. She would then go over it with them more individually. She said:

> What I notice most of them saying, the reason that they really liked it [the videos] was that they can pause and go back. So if they didn’t understand something, instead of saying something in class when you are doing the direct instructions,
they’re not going to ask you to pause and rewind, whereas with the video they could pause it. If they misunderstood something or if they just didn’t get it they could replay the video. So that was the part that they really did like.

When I asked Ms. Paulson whether she felt her students had any challenges when comprehending the videos at home. She did not see any problems in students understanding the language she used, however, she did think that some audio issues may have caused a few problems with the videos and commented:

I actually had more positive feedback than negative, and even my negative feedback kind of turn into positive feedback. My positive feedback was that it was funny and they were able to laugh. Now, when they see a certain person, or they think of basketball they’ll think of math. Because we did spheres, and they think of me which is kind of cool. I guess. And my negative feedback would be the noise in the background of the videos. Sometimes I didn’t know I had like, for example, water running. And so now they make jokes like, “Oh your water was running. You’re in the rest room, right?” And so that was the kind of funny, and it wasn’t really negative. I don’t know. But I wanted feedback from the kids. I kind of knew they watched it because I didn’t even know that the noise was in the background. Because it wasn’t something else I was looking for, but I guess when they’re on a headset, like you hear it more. So they’re like, “I can hear water in the background.” Or they can hear my dog or sometimes breathing.

When I questioned Mrs. Picot about whether there were problems or challenges for her students understanding her instructional video lessons, she felt that there really
were not any issues with language or comprehension that imposed on her students’ learning. She indicated:

I didn’t usually have any problems that they didn’t understand the lesson. Like I said in the beginning, I really tried to keep it a basic lesson. I didn’t try to throw anything that would be over their heads in the video lesson. What I wanted them to know is, for example, if I did volume, that they could plug-in to the formula and know how to do it. Not, “Here is an application problem, if we’re filling this up and I wanted to empty it 30 times.” You know. Those are the types of questions. I wanted to be able to do that in class with them. If they understand the basic formula, and how to plug-in to it, then the other parts comes easier. So I never took them to a level that I thought they couldn’t handle on their own at home.

**Research Question Four-Recommendations**

Research Question Four asked: What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol elicited teachers perceptions regarding recommendations for improving the video delivery in the eighth grade math flipped learning instructional model. The inquiries also focused on whether or not students would recommend the flipped learning instructional model in the future.

**Recommendations to improve flipped learning video delivery.** I asked the teachers to share recommendations for improving the development, process, or implementation of video delivery to engage students in a flipped learning instructional model. Most responses were related to the time and understanding it took to implement
the flipped learning model. They indicated that learning about how to use the software programs, and the time it took to record their lessons was at times, challenging. They felt if there was a quicker way for teachers to learn how to use the flipped learning model, it would be an improvement.

Mrs. Horner made the following suggestions regarding improvement in using the flipped learning model:

The only thing that I wish that we were able to know is to really see if they were watching the videos. I mean, I know that my students did watch it. But I would like to be able to have something when you login you could see how long they spent on the video. The recommendations to improve the development, I think if teachers work together to create the videos it would take less time for each teacher. You know maybe take turns doing one video a week for each teacher. Implementing, once you set your expectation and don’t let down, even if they’re not watching the videos. You know. Continue with that, then they will watch it. At first, the very first video that we did, there was like six students in one class that didn’t watch it. And then when they [students] saw that they didn’t get to do what we were doing, they had to watch the video first and take notes. And they ended up getting behind us. They started watching the videos because they saw what they were missing out on.

Ms. Paulson felt that having a more efficient way to learn about which software programs worked best and to reduce the amount of time needed to research so many options would be beneficial. She described it by saying:
I think during the conference that I was sent to it was very, very beneficial. There was so much, so many different apps, and so many different things that you could use. The biggest issue we had, that took the longest time was to figure out how we’re going to implement it. What are we going to use? What apps are we going use? We had to do all the research, and granted much of the research was done for us. It was just that we have to do like decide preferably how we wanted to do it, and that was my biggest concern. If I could give any recommendations, I would say make time in the beginning. That’s what you’re going to need it for. That’s what you’re going to need the most of, time. The more and more you do it, it’s not going to take you eight hours to think of what you need to be doing. It’s just going to come quicker. So that’s the kind of recommendations I would give to any person that’s trying to implement this method.

Mrs. Picot’s response mirrored much of what Ms. Paulson said when asked for recommendations for the implementation and process of the flipped learning model. She said:

I think that definitely the computer side is the hardest part of implementing the model. For example, I would go with the program that maybe the school is using. I know once we started with our program, Schoology [LMS],, the whole school jumped on board with it, once they saw how easy it was. You definitely want a program that the students are used to using. And once they become more comfortable with it, it’s a lot easier to implement the flipped classroom. Because the students are already aware of what they’re doing and how to maneuver around the program you’re going to be using.
Now, on the video making side of it, there’s so many ways to make a video. There could be a basic video with no pictures. There could be a video with pictures. But from what our understanding is that when students see you, it’s more personal and they enjoy watching the video if they see you. We found out that to be true, they said if they can’t see you then usually they become disinterested on what was happening in the video. So that’s definitely another thing I would suggest to teachers. Is if you’re going to make a video, you know having your pictures on there is definitely something the kids like to see even if you know you’re sitting on your bed. They don’t care. But they see you and they interact with you in it.

I know that we showed the video in class one time. On the video I asked a question, and the students would answer back to the video like as if I were there. So like just watching the students interact with the videos, I know that when they’re at home that they’re also seeing me and answering me back, which I guess is a good thing.

I asked Mrs. Picot if she felt it was important that teachers receive professional development courses before trying out the flipped instructional model. She agreed it was important, saying:

There’s no way that I could have done it alone. It would have taken me a lot longer myself and the other colleagues. It would have been much longer to implement the flipped classroom if we wouldn’t have gone to the training. He [the flipped learning instructor] was able to give us programs that were he thought were more beneficial to him, as he did his flipped learning. So for us to bring that
back and he could tell us why he wouldn’t use another program because of this or that. It seems to work best for me. And so when you hear that from others, it’s a lot easier to make your decision on where you’re going to go with your flipped learning. So definitely, if you’ve never been to a staff development on flipped learning and try to implement it, it’s definitely a hard thing to do.

**Future usage of video delivery in flipped learning.** The final question I asked the teachers was whether they felt it was beneficial to continue using this method of teaching in the future as a means to increase student engagement. Mrs. Horner strongly agreed that the flipped learning model should be used and continued among teachers saying, “Yes, most definitely. I think that it should be continued, and is beneficial because it gives us more class time with each skill.” Ms. Paulson also felt that teachers should use the flipped learning model because of the benefits she saw with her students. She believed that technology will play a large role in the future of education and that the flipped learning model is part of that. She described this by saying:

Yes, I think that if every class was a flipped class, like a flipped learning environment, I think that it would be amazing for students, especially. Like I said, technology, that’s where this world is going and so I think they need that. I think the younger we start, the better it will be for them and the more successful they would be. And also it [flipped learning] makes them more I guess, they take ownership in their learning. Because I can’t force them to watch a video and I can’t force them to take notes. Of course, I can’t force them to do homework either. It’s just that they realize, “This is was what I need to be doing at home and
at school I can ask questions.” I just think it would be great. I think it’s amazing and awesome for teachers, too.

In addition, Ms. Paulson wanted to share a positive example about one of her students and how the flipped learning model helped her. She described this example by saying:

I did have a student whose parent had expressed her concern because she wanted to help out their student. But the parent was one who like didn’t know how to teach her student, because she hasn’t been in school for a long time, or since she was in high school and so it had been many years. So she was concerned and wanted a tutor. When I told her I was doing my flipped class and what was it about, she actually, her and her daughter actually watch the video at home, at night. So she was able to help her daughter in whatever she didn’t understand. And she thought that it was amazing. And the students saved it on their netbooks, or still have the links on it, or they just go to the internet and they can just Google my name and find it. Some of them even re-watched the videos for STAAR reviews so that was very beneficial.

Mrs. Picot was a firm proponent in using the flipped learning model and believed it made a significant difference in her students’ engagement level and performance. She detailed her thoughts by saying:

A 100% yes. I know next year, I will be implementing it again. I’m going to try to do it more often. I really feel that the students will do a much better job in my class if I implement the flipped learning classroom. And from everything that I’ve ever done or seen or staff development I’ve gone to, it’s always been, it does
improve my classroom, and I’m a 100% on board with it. I would like to do it more often in my classroom and that is my goal for actually in my PDAS statement. That was like my big goal for next year was that I want to implement the flipped classroom more often in my class. So I would definitely recommend it to anyone who wants to move their classroom to another level of teaching that to implement that.
Chapter VIII

Administrators Focus Group Five

Focus group five was included in this research to present the perceptions of the flipped learning instructional model as it was observed by two campus administrators. The school principal, Dr. Hershel and the 8th grade assistant principal, Mr. Bingham were the two participants in this focus interview. By including these administrators as part of the interviews, it provided insight into the role of leadership and the experiences they had when observing the flipped learning instructional model. Both administrators were questioned about how frequently the videos were used. They indicated that on average, two videos a week were used.

Research Question One – Technologies Supporting Video Delivery

Research Question One asked: What technologies support video delivery to engage students in a flipped learning instructional model? Questions from the guided protocol were designed to elicit administrator perception responses about student access to the internet, electronic devices, and other technologies used outside of class to support engagement when receiving math instruction through video delivery in the flipped learning instructional model.

Internet and electronic devices. I asked the administrators if students were able to access the internet and use any other electronic devices besides their school issued netbook to view instructional video delivered lessons at home. Because both administrators had a limited knowledge of this question they provided what they knew.

Dr. Hershel began by stating:
Well, first of all that is a hard question to answer because I don't, without knowing whether students pulled out their smartphones in this age of 4g technology, and were able to access it. I do know that when the students left the classrooms, the teachers were able to upload the videos on a specific application, which then went home with the students. And so whether or not the students at that particular point had access, they did have a working netbook, because at this school, all students have the opportunity to have a one-to-one netbook. And it really depended on the days of implementation of the videos whether or not they had access to that.

Now here's the other pivotal point. If they didn't have a netbook, the students have the ability to access the videos via the web interface. They could have taken their home computer and watched it. I know in some cases they uploaded it to YouTube or a teacher tube platform, which was public. So they would have had that opportunity to access it. And then the third element there is whether or not, even though students that may have had a computer at home did they have internet accessibility. That's something I can't answer.

So, when I went back and talked to the teachers about that, all three teachers said that all their students were able to view the videos. So I feel very comfortable to say, that yes, these students were able to access it somehow. Whether it was a Smartphone, whether it was their own home computer, or their netbook that they took home and it was already pre-loaded. So I think that we've covered all those, but I'm basing that on the teachers' responses.
When Mr. Bingham was asked about students’ technology usage he was uncertain and replied:

You know, no. I'd just be telling you that my thoughts which are probably most of them [students] were actually on the netbooks that they were provided. But I'm sure some of them had access through other means. It's just hard to say for certain how they were doing it.

**Technology outside of school.** I asked the administrators to describe student experiences with using technology outside of school to view their assigned video lessons. Both administrators conceded that their general knowledge of student technology outside of school was limited.

Dr. Hershel concluded:

The only thing that I would add is that as a school district system, we are trying to work feverishly to try to make sure that all students have accessibility. And some of those discussions include making a district wide Wi-Fi where all students will have accessibility on a free web-based connection. And so that's not here yet, there have been discussions and negotiations but hopefully in the future, just like some cities do in the USA. Hopefully that will be available for our students in the future.

**Research Question Two- Benefits of Video Delivery**

Research Question Two asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand the administrators’
perceptions of student experiences, engagement levels, math benefits, and how class time was used during implementation of the flipped learning instructional model.

**Experiences with the flipped learning instructional model.** I asked the administrators to describe the students’ experiences being taught through the flipped learning model instructional videos. This question served to gather insight of how the leadership of this campus observed the students who were learning from the flipped instructional model. Dr. Hershel felt that the ability to provide instruction that provided problem solving skills through a video delivery medium was very effective. Mr. Bingham agreed, however, he believed that the success of flipped learning lies largely with the effectiveness of the teachers.

Dr. Hershel led the discussion about student experiences with the flipped learning instructional model by responding:

As far as observing the math students, I would definitely say again, it kind of goes back to what we've been talking about all along. That math is one of those abstract types of subjects where students lacks the background in being able to problem solve. So, if they are given specifics on how to do that, and how to set problems up, that’s the advantage. Because really when you think about math, teachers have to demonstrate what problems look like, and how to solve problems, and how formulas work together. And so, what I've observed is the flipped classroom is yet another tool for teachers to use. It's not the end all of end all’s, but it is yet another tool to emphasize particular concepts within math that teachers can use more depth, more context.
So again, that's my overall opinion about that, and I really think that there's a value in that including other videos, including incorporating other videos, perhaps a professionally published video intertwined with what our teachers already do. I see the need to expand on this further and I can see the implications would be more beneficial for those especially struggling learners.

Mr. Bingham added:

Well, I mean just in overall general terms, I do think it's beneficial. I do think that it's been a benefit to these 8th grade math students. I think one of the main reasons is that you have, in my 8th grade level, where you have dedicated professionals that are willing to put in the time and the effort to make it what it is. I mean if you had a teacher in there that was lesser quality, I mean of course, you would see less results. So, it's hard say that the success we have this year can be just laid at the feet of the flipped classroom, because we have such great people in there.

But you know from looking at what was done, and witnessing the things that they've done, and talking to the kids and their interest in the videos. I would just say, yes it's worth doing, but you have to have people that are dedicated and willing to put in the time. Because it does take time to produce something of high quality. But that said, you have a product going into the next year that you can build on.

**Engagement levels.** I asked the administrators whether they believed student levels of engagement in learning from the flipped model were higher, lower, or the same as traditional direct instruction. Dr. Hershel began by saying:
I can honestly say that I felt the actual time on task, you know attention to problems in the classroom, that there was more focused time during the class periods when students were working. Obviously knowing that the students actually viewed the video at home, but then when they actually working the problems in class, it was much more time on task with the actual problems. I also noticed that again, going to back to what I responded to earlier, it really provided the teacher more focused time for those struggling learners.

So, I feel as a benefit to those struggling learners, the teachers were able to facilitate more one-on-one, or small grouping them together to be able to give focused attention whereas they probably wouldn't have got that in a traditional instructional class. You know, because they have to try to teach everybody at the same time and keep everybody at the same pace. Well at that point, the teachers were able to focus more for those that needed individual attention.

I asked Dr. Hershel if he felt that there was a higher engagement level with more responsive students, he answered:

I do, absolutely. I felt the students actually embraced that time. That was their time to work the problems and I felt like they used that time as a focused time to really dissect the problems. Again, help one another. So I think the classroom time on task was much higher during the implementation of the flipped class.

When I asked Mr. Bingham if he would like to add his thoughts he replied:

Yeah, I agree with Dr. Hershel. I feel like engagement was higher. A hard question to answer because the teachers that I observed, one was a new teacher, so I don't have anything to compare it to, and the other one was a veteran teacher
who is an outstanding teacher who always has high engagement levels, or always in the past. But my feeling is it was higher and there are two reasons for that. Number one, I think that the kids were genuinely interested in the videos. They loved the videos and it grabbed their attention, and it was a great way to capture them. Number two, the teachers were able to be facilitators after the videos.

So, they were able to monitor the classroom more closely, they were able to provide assistance for struggling learners, and so kids weren't left to kind of dangle in the wind if they were struggling. The teacher could identify it right away and they were able to provide assistance.

Dr. Hershel added:

I totally agree. I would add one more thing to that. You know when you were mentioning about how they were working together, the veteran teacher with the new teacher, it was almost as if they using each other’s' strengths. Because the new teacher had a lot more technology background, as a recent graduate from college. They really have a lot more technical savvy than the traditional or the more experienced teachers, in that respect. However, the experienced teacher was able to bring to the table more depth into the actually content area. So, I say it was beneficial because there was a focus with implementation.

Math benefits. I asked the administrators whether they believed the flipped learning experience was more beneficial for their students’ math education. Dr. Hershel shared that parents have also shared their positive feedback as they became familiar with the one on one technology, and flipped learning. Mr. Bingham also included that from his
conversations with students they are requesting more videos to be made because of such a high interest in them.

Dr. Hershel answered by saying:

Well, I feel that it has been more beneficial. Again because it does provide a very focused emphasis on context clues, and because teachers are able to expand on models and visual examples. The other thing that I want to mention about is not just how students feel about this, or how we feel about it, and how the teachers feel about it, but the parents. Because I've also been approached by some parents that did not know how we were going to use the one-to-one implementation this year on this campus. But now they see that we are using it so that students can view the videos at home, and may have some homework problems to address. They see the value added concept that were added to this. So it's been very impressive for our parents as well. So I want to make sure they include that.

In addition, Mr. Bingham stated:

Well, I noticed part of that is communications. Communicating with the students and we have talked about this, even today, because the students were requesting additional videos. Because the teachers have gotten away from recording videos a little bit because we're in this point of the year trying to gear up for a second round of SSI [Student Success Initiative]. That's kind of preoccupying the Math and Reading departments. But, one of the teachers produced another video for the students at the request of the students. I mean the students really, really like it. As evidenced by their requesting additional instruction in that way from the teachers even now.
**Time in class.** The administrators were asked to describe what time in class was like when students were being instructed through the flipped learning model instructional videos. Dr. Hershel stressed the differences in the class room dynamics when he observed an increase of student participation. He shared his observations and thoughts about the class room setting during the flipped learning instruction by saying:

Well, first of all, I think that the students, when you put something on an electronic medium such as the videos it really attracts the students' attention. I think having an electronically published instruction, the students were interested. They wanted to see what the videos were like, especially since the three teachers involved were trying to add a comic element to the videos to attract the students. And I think that was part of the planning process, but as it relates to the observations in class, when I visited the classrooms, I certainly noticed a strong focus. The students were attentive to the lessons that were being demonstrated.

And then the day after the video was given, I also noticed that the classroom concept completely changed from the traditional classroom, whereas the teacher's doing all the talking and students listening. In fact, what ended up happening was the teachers became more or less a facilitator of instruction, more or less focusing on individual students, and walking around. I also noticed that students were problem solving with themselves.

In other words, they were turning to their peers in the classroom and assisting one another, therefore changing the pedagogy of the actual classroom concept. A more student learned center process where they were learning, what they were picking up and they were doing it all their own. And I think that, that in
itself is when students actually have the opportunity to teach other students. They themselves get stronger and of course they emphasize the important points of what they need to know in that process. So I think it was a huge benefit. And I saw it as a benefit to the teachers too, because the teachers were able to really spend the needed time with the struggling learners. And to me, especially in a time when kids are faced with some difficult learning issues, it really helped the teacher to be able to focus on those struggling learners in the class.

When Mr. Bingham was asked about his observations his response supported what Dr. Hershel had said, stating:

Yeah. The only that I'd add to that is the times that I was able to do walkthroughs and being able to see the flip classroom in action, I would say that the big difference that I noticed was that it provided the students more guided practice with their teacher. You know, the times that I had been there, they had watched the videos at home and then they attempted to master the skill at home. When they got to school, they were participating with the guided practice with their teachers so the teachers, like Dr. Hershel was saying were able to be more of a facilitator. It was more like a tutoring session, where they were able to target kids that are struggling. They go in there, and they work with them individually. Like Dr. Hershel said, students really understood. They were able to peer-tutor. They were able to teach the skill to other students. It was really a good thing.

Dr. Hershel added to Mr. Bingham’s answer by saying:

I also noticed that it also gave the teacher the opportunity to go backwards at the beginning of the period to do a review, “What did you learn from the video when
you did view it.” Then of course, that would be almost like a quick start, so to speak. The teachers would work out problems together with the students based on what they learned from the videos. Then that would prompt a real brief discussion, and then moving right into the whole classroom flipped process, where the students were actually teaching one another and then of course, dissecting the actual problems. So, again that benefit was being able to review also.

**Research Question Three- Challenges of Video Delivery**

Research Question Three asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol were designed to understand student challenges related to internet accessibility, video preparation time, and video comprehension.

**Internet accessibility.** I asked the administrators about technology usage outside of school and one concern was internet availability. Both administrators commented that they were limited in their knowledge of how much student accessibility there was in regards to using the internet. They both indicated that from their conversations with the participating teachers, they understood that there were no significant challenges for students to access the instructional videos.

**Video preparation time.** I asked the administrators about any other concerns which should be addressed to improve the flipped learning instructional model. Both Dr. Hershel and Mr. Bingham agreed that from their observations and communications with the teachers, it took them a considerable amount of time and resources to initially create
the instructional videos. However, they noted that the teachers expressed that the efforts were worth all of the time needed to prepare the lessons, because of the benefits the students gained from watching them.

**Video comprehension.** I extended the question from technology usage to ask the administrators whether there were issues regarding the clarity of the instructional videos. I asked both men, in their observations, to describe any challenges that students may have had understanding or comprehending the video lessons recorded for instruction. Both administrators felt that language was not a significant issue for students who were instructed by the flipped learning instructional model. They felt the examples and illustrations used in the videos were an advantage for all students. However, Mr. Bingham noted that for some students, the English language posed difficulties, generally in their learning because English was not their first language.

Dr. Hershel commented that there were few, if any, challenges for students regarding understanding the video lessons. He said:

I would say, no, not that I observed that. And I'll tell you why, and I'll give you a very specific example. I know that on one particular video that I was actually a part of, they videotaped a lesson about teaching cylinders, okay. And what I loved about the way that they did this, is they gave students context-embedded clues, in other words, pictures of what cylinders looked like and what they are. For example, one such cylinder was a large drum that was on the stage and in a playful manner; we demonstrated other cylinders like large coffee cans.

That was part of the video, so it was really easy for students to really have background knowledge on what they were because they were able to give them a
visual or context clues, so they can understand what that looks like. Other than just talking about, and that's the problem in education today is that many of our kids lack that background knowledge and don’t have examples of what those things look like. So the teachers were able to include that in the video, thus giving the students a baseline of what those contexts were, and the multiple examples. So, yes! Absolutely, it really helped, I can see how students were able to go outside the classroom and find other examples of a cylinder. So, yes, I really think it's beneficial.

Mr. Bingham responded:

Well, no, I didn't get any feedback that there were specific problems with the videos and their understanding of that. If there were problems with the way students comprehended the videos, the teachers had an entire class period to clarify and explain. You know, so my answer to that is no, and certainly not more so in a different classroom setting.

Mr. Bingham added:

I think one of the things that hurts us a bit is our students, a large percentage of them, are not students that learn English first. They're Spanish speaking first and then they learn English. While they may be fluent, and they may be even on grade level, they still struggle with things like academic language and I think that the flipped classroom videos really helped them with the academic language aspect of things. I think it really helped them with mathematical terms. You know when you read it on a piece of paper, that's one thing but when you're teacher is putting
on a video you can relate to, and it's funny. I think it really helped them grasp those things. It was good for the students in that way.

Research Question Four—Recommendations

Research Question Four asked: What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Questions from the guided protocol elicited administrator perceptions regarding recommendations for improving the video delivery in the eighth grade math flipped learning instructional model. The inquiries also focused on whether or not they would recommend the flipped learning instructional model in the future.

Recommendations to improve flipped learning video delivery. I asked the administrators to share recommendations for improving the development, process, or implementation of video delivery to engage students in a flipped learning instructional model. Dr. Hershel replied:

I think that teachers, at least these three teachers have learned from their experiences. I know that I have consulted with them after everything has been said and done. They loved it. Their only concern is the time it takes to make the videos and try to be creative and capture the students’ attention. But going forward, I'd like to say that I think this is something that we can actually demonstrate to other teachers across other curriculums as well, all of our areas. I think that there is value added. Again, that value added concept, there has to be a time and place. Again, it's not going to be a fit for every moment in curriculum, but it would definitely strengthen areas where teachers need to add more context to the focus that their trying to teach at the moment.
When Dr. Hershel mentioned how he believed the flipped learning instructional model had extra value added to the concept of video recorded instruction, I asked him about whether he felt there were academic gains as a result of the new model. He eagerly replied:

Mrs. Horner, the seventh grade Pre-AP teacher, she used the Flipped videos more than the others did. And what I saw, looking back on her data, interesting enough, her data show that the kids that participated in the model actually outperformed the other two eighth grade classrooms and they were rank number one in the entire district and had the highest district exceeds expectations. Again, I do think there is value added and it really depends on the creativity, and of course the context in which the teacher uses the video. Yes, absolutely, there's value added.

Mr. Bingham also recognized the value of the flipped learning instructional model and felt with more professional development and training it could be expanded. He said:

You know if we were to expand it in other areas and I'm talking about sixth grade and seventh grade and other core classes. I would say that, you know, we have three people in place right now that are very skilled in doing this. We would probably need to look at staff development as a campus. And maybe getting them to train other teachers in this way or we can have a more targeted approach and try to recruit two or three teachers to start implementing these things and have it grow out. I recommend trying to do a targeted approach. Approach some teachers that we think are suited to do these things and growing it out that way. I think if we just cast a wide net well, there's no telling what you'll get there.
**Future usage of video delivery in flipped learning.** The final question I asked the administrators was whether they felt it was beneficial to continue using this method of teaching in the future as a means to increase student engagement. Dr. Hershel responded:

I really do. As Mr. Bingham mentioned in the previous question, I really think that we need to make sure that we do a good job of presenting this in a professional development, and show the results to other teachers. Because teachers, I hate to say this, but sometimes they can be very skeptical of something new. I want to be able to abolish that skepticism and make sure that they know that it is another tool to their tool belt so that they can expand, and how they can expand. Not just, "Oh here's a video," but here's how it can be used and what their benefits are because I think when teachers hear it from other teachers, and they actually see the benefits in terms of data.

They start to embrace to the idea, "Maybe I should implement something like that. May be I should consider that." And I think that this is something that they can incorporate during their common planning period as a professional learning community, as a team just as the two eighth grade teachers and the single seventh grade teacher did. They tried to incorporate that along with their planning. So, I would like to see this again, embrace it with our faculty in the future but I do believe it's going to have to be, the foundation is going to have to be laid with some professional development and some real examples.

When Mr. Bingham asked if he agreed, he responded, “Yes, I do. And I think we need to look into actively expanding it to other parts and other members of our faculty, but I would favor a targeted approach on that. That's it.”
Chapter IX

Findings and Analysis of Data

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. This research explored the phenomenon of individuals who had lived experiences participating in flipped classes to observe and elicit impressions and consensus about their experiences. Through the use of open-ended interview questions directed towards teachers, administrators, and students the following questions guided this study.

1. What technologies support video delivery to engage students in a flipped learning instructional model?
2. What are the benefits to using video delivery to support student engagement in an eighth grade math flipped learning instructional model?
3. What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?
4. What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

Research Question One – Technologies Supporting Video Delivery

Research Question One asked: What technologies support video delivery to engage students in a flipped learning instructional model? Findings, reported as emergent themes, included: internet and electronic devices available to all and video delivery available to all outside of school.
Internet and electronic devices available to all. All students had their school issued netbooks to use to view their video instructional lessons. Many of the students also had access to other devices that could be used to watch the assignments outside of school. Among those devices, iPhones and iPads were most mentioned as other available options for students to use. One student stated, “I use my netbook and my cell phone also because I think my cell phone is really easy and I am really comfortable with it. It is always right there in front of me.” A number of students mentioned that they could use their parents’ smart phones to access the internet if there was no internet at home. The students also would use alternative locations that provided free Wi-Fi such as the library, or local establishments like Starbucks or McDonalds.

All three of the teachers indicated that internet availability and electronic devices were not a significant problem for their students, concerning access to the instructional videos. The teachers assured me that provisions were in place for any student who did not have ways to access the internet, such as providing the student opportunities to download the videos on their netbook prior to leaving school, as well as providing them morning and after school tutorials that they could watch the videos at school. One teacher stated:

I guess I have about an average of five to six students that didn’t have internet in each class, which was a problem. So we made sure that we found ways that they could download the videos while still at school.

The two participating administrators acknowledged that their information regarding student technology accessibility was limited. However, they did share that the conversations they had with teachers and students confirmed that devices and internet usage was available to students through varied means provided to them.
**Video delivery available to all outside of school.** The students indicated that using technology outside of school was not a problem for them, and were provided various options to access their video instructional lessons. In general, most of the students had some form of access to the internet whether it was Wi-Fi at home, or the use of a smart phone. The students also commented that if they needed to watch the video and did not have their netbook, they could work together with another student to watch the videos with them. Others implied that they enjoyed the experiences of watching the assigned videos at venues such as Starbucks or McDonalds. One student described her experience saying, “Especially at Starbucks and we’re having coffee and a little bread there, while watching the video, and staying busy doing your work. It’s just like a little focus place. Like it’s your own little world.”

The teachers also found that students were adequately able to access the video instructional lessons outside of school. They indicated that while the majority of students had some form of internet access there were some students who did not have any other available technology besides their school issued netbook. Mrs. Picot noted:

A lot of my students I know were able to use their phones to watch the videos. And they were actually really clear. And I had some students say they would rather watch them on their phone than they did on their netbooks.

For those students, options to download their videos, use alternative internet sources, share videos with other students, or watch the videos either before or after school were made available.

When the administrators were questioned about student internet availability they responded that their general knowledge of student technology outside of school was
limited. The administrators shared in their interview that while there were some students who had to use alternative means to access their instructional videos, it was the goal of the school district to soon provide free Wi-Fi access to the local areas. Dr. Hershel stated, “The only thing that I would add is that as a school district system, we are trying to work feverishly to try to make sure that all students have accessibility”.

**Research Question Two- Benefits of Video Delivery**

Research Question Two asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Findings reported as emergent themes, included the following: availability for students of videos anytime anywhere, motivated student learning, teachers motivated by student learning, student engagement levels were increased, pace of learning math concepts increased, student time in class more focused, and more time in class for review and collaboration.

**Availability for students of videos anytime, anywhere.** There were a number of essential elements about flipped learning that surfaced during the interviews among students. One of the most common themes was the capability of watching the videos as often as needed, with the added feature of being about to pause the video and replay. They also believed having all of the videos downloaded provided additional opportunities to review and memorize the lessons. One student commented, “It helped you to be stronger and take away barriers that you had because you could go over it again and keep learning on it.”

Another advantage students felt from learning from the flipped model was to be able to learn any place they chose, with the comfort of their own environment. Students
remarked that watching the videos from either home, or an establishment with Wi-Fi, such as Starbucks or McDonalds, made learning more relaxing and focused. A student described his experience saying:

You’d be in your PJs. You do something good. You’re just eating cereal watching a video and taking your notes. Sometimes you’re tired during the day [at school] and then when you come back home at night, you just relax in your bed watching it, taking your notes, and have fun with it.

Several students discussed that at school the distractions around them, particularly among their friends were an obstacle for them to concentrate on in the class, and found watching the flipped learning instruction model at home had less interruptions.

**Flipped model motivated student learning.** An observation from a number of the students was that in school there was a limited amount of time to listen and process instruction, and they found that to be challenging and limited their ability to understand what was being taught. They commented that the teacher does not have the ability to continually repeat what is being taught, but with the videos they had their teacher’s instruction individually delivered to them.

One aspect the students particularly enjoyed from the flipped learning videos was the high interest and use of humor, music, and relevant examples in the videos. This motivated student learning and the students were very pleased about how the teachers incorporated fun examples that used such things as the school basketball game, the teacher’s house, celebrity images and popular music to help the students memorize the skill being taught. One student noted, “The flipped learning had many advantages. Not only was it educational, but the teachers were also entertaining. They’re really funny.”
The students concluded that learning from the flipped learning instructional model was an effective tool that assisted them in understanding math, and they found that using this form of technology was an added benefit because it was something they were familiar with and was interesting. They indicated that learning from the videos gave them an advantage to learning on their own terms. Mrs. Picot stated:

The beneficial meaning for flipped learning was that my students took their own learning in their own hands instead of me having to force feed them. They enjoyed it and when they enjoy something, and then they do it more often.

**Teachers motivated by student learning.** The teachers’ personal experiences from teaching the flipped instructional learning model were also very favorable. In fact, the teachers became motivated themselves when observing student learning. Consistently, each teacher recalled how the effort and time that was put into learning how to teach from the flipped learning model, what programs should be used, and how class time would be spent, were all worth it. A teacher stated:

It was worth the time that it took to make the videos. I think it was well worth the time that it took. And I thought it was a very positive experience and I plan to do it next year.

**Provided teachers more quality attention for students.** Teachers agreed that the flipped learning instructional model allowed them more quality time with students. Their experiences of watching their students learn at home and come to school more prepared and more engaged provided opportunities to spend quality time working individually with students. Ms. Paulson described her class saying “My class time I actually had more time to re-teach if I needed to. More on one on one time students were
able to ask questions. We’re able to do more activities, like more scavenger heights”.

The teachers did acknowledge that a considerable amount of time was needed to implement the flipped learning instructional model and that at times it was difficult, but once they started making the videos everything became easier.

**Administrators observe increased teacher motivation.** The administrators believed there was great value in the implementation of the flipped learning instructional model for the students. They observed the teachers’ time spent in the development stages of creating the flipped learning model and recognized that their teachers were exceptional in the time and commitment it took to implement the model. Both administrators felt that without the dedication and professionalism of the teachers who participated in the flipped model it may have not been as successful. The principal believed that the flipped learning model was a strong beneficial tool to teach for math. The assistant principal stated:

I do think it's beneficial. I do think that it's been a benefit to these eighth grade math students. I think one of the main reasons is that you have, in my 8th grade level, where you have dedicated professionals that are willing to put in the time and the effort to make it what it is.

**Student engagement levels were increased.** Various aspects of the study revealed findings that suggest student engagement was consistently higher than when students were taught from traditional direct instruction in the classroom. The emphasis of viewing the videos seemed to be the larger aspect for reasons that engagement levels were higher, rather than how time was used in class. Mrs. Picot said:
I think students’ engagement with the video is definitely way higher than getting them [the students] to do work when they go home, or when they get homework.

The students were able to come back and say they enjoyed the videos

While class time was discussed across the participant interviews, the direction of the conversations often went over the positive aspects of the videos.

Students overwhelmingly agreed that the quality and unique aspects of using music, humor, and other memory mechanisms of the videos made watching them a strong and favorable aspect of their learning experiences. Students across all classes found great value in the techniques their teachers would use to capture their attention, and help them to connect and memorize mathematical concepts with short songs, visual images and entertaining features. According to the students, because the videos were viewed with consistency and often repeated, they came to class much more confident and prepared for the day. One particular student commented, “It’s like having your teacher there at your house teaching the steps and things with your learning. The next day you come in and you already know what you already know.”

The students attributed their growth in academic progress in math to an increase of understanding and confidence that came from watching the videos. As a result of instruction from the flipped learning instructional model, students believed their learning was in greater depth as a result of being able to listen repeatedly to each step of their math lessons, allowing them to take notes and process what was being taught at their own pace, and without disruptions. As a result, they felt more reassured and determined about the math objectives being taught from the videos.
The teachers also perceived that engagement levels for their students were much higher as a result of providing instruction from the flipped learning model. Common statements from teachers included students showed an increase in class participation, improved student learning, enjoyed technology usage, and added project-based learning. One teacher stated, “Their engagement was very high. It was rare that I would ever see a student off task on the day after the video.” The participating teachers felt their students were more focused, attentive, and on task during their classes. The teachers also felt their students were processing the instruction better as evidence in the increase of notes that were taking and the frequency of questions they would ask in class.

The administrators concurred with the other participants in their observation of the students learning from the flipped learning instructional model. Their comments included students were concentrating more in class, and were on task with consistency. Their observations also noted that students were receiving more individualized time during class with their math teachers. They felt students who watched the videos at home translated into a higher interest and engagement in school and also showed a genuine interest in their math classes.

**Learning pace of math concepts increased.** One prominent theme that arose from the different interviews was how learning from the instructional videos increased the pace at which students would accomplish one math concept and move on to the next lesson. Providing the ability to learn basic, fundamental aspects of a complex math equation with the capability of listening to instruction repeatedly, and without the usual distractions in a classroom environment allowed students to process the concepts at their own pace. One student said, “The flipped model have been really beneficial because it
helped you get things faster and understand it and the next day you get that subject done and you start a new subject.”

The participating students agreed that with the opportunity to view their teacher from the instructional videos helped them to understand math concepts quicker and with greater comprehension. Many students discussed how in class not only were they restricted in terms time available to learn, but they also had various distractions that prevented them from focusing on the direct instruction. The students remarked how their friends could be a distractor and that the ability to engage in the lesson in class was sometimes hindered by the interruptions of their classmates. A student described her experience saying, “Your friends always distract you. They don’t like to pay attention, but whenever you’re in your house you get to be by yourself in your room and you can pay attention better.” Consequentially, the students believed that allowing them to learn from the instructional videos outside of class was beneficial to their math education.

All of the teachers agreed that learning from the instructional videos was a very positive benefit to the student math education. The teachers’ thoughts about student learning benefits in math coincided with the student responses when mentioning the speed at which instruction took place using the flipped learning instructional model. One teacher pointed out that one 15 minute instructional video took the place of an entire class period of direct teaching. As a result, all of the teachers agreed that the extra time in school allowed them to provide additional support and individualized guidance to the students who needed extra help. One teacher explained:

I saw that they were able to come in to class already having the basic, the basis of what we were going to be starting with. Instead of starting all over, the students
were already ready to go, and like I said in the beginning, if they didn’t understand something they were able to rewind it and re-watch it.

When the teachers were asked if the flipped learning instructional model was beneficial in terms of solving complicated math equations they shared that having the advantage of repeated instruction and pausing the video helped students to better comprehend the examples and explanations provided to them. All of the teachers noted that when the students were allowed to absorb more of the instructional lesson from the videos the students’ confidence level was higher, as evidence in more student participation and answering questions.

Dr. Hershel and Mr. Bingham, the two participating administrators felt that the students’ math education was greatly improved because of the flipped learning instructional model. It was noted in their interview from the school principal that he observed far greater on task and focused engagement among the students. Based on their frequent walk-throughs and observations both administrators believed that time in class were better structured with more expansion on math objectives for students to learn at a deeper level. Dr. Hershel noted:

Because really when you think about math, teachers have to demonstrate what problems look like, and how to solve problems, and how formulas work together. And so, what I’ve observed is the flipped classroom is yet another tool for teachers to use.

Mr. Bingham observed there was a higher concentration of collaboration and discussion among the students after they watched the instructional videos.
**Student time in class more focused.** Overall, class time was spent with more time working problems, asking questions, collaborating with student peers, and seeking individual teacher assistance. According to participants the pace in class was quicker with an increased amount time spent on solving problems which made learning occur faster. Students shared a number of examples of how class time was used, including reviewing with teachers, writing better notes, and focusing more on problem solving. One student remarked:

> For me, like when I got to class I think it was easier, because after seeing the video at home when I got to the class it was like easier, because I was ready. So, I just needed to work out a few problems and that’s it.

Themes that arose from their interview included working at a faster pace, doing group work, reviewing the videos for understanding, asking more questions, and to assess for understanding through daily quizzes they would take.

**More time for review and collaborative learning.** All of the teachers shared a similar theme in which students were given more opportunities to solve problems and to allow classmates to work together while learning math concepts. The seventh grade Pre-AP teacher did use her class time somewhat differently in that she had more group assignments with her students. While the age of the seventh grade Pre-AP students were younger, the interviews suggested that much more review and support was needed among the regular eighth grade students than for the seventh grade Pre-AP group. A student from the seventh grade Pre-AP class noted:

> Almost everything that we do is done is as a group because Ms. Horner knows that sometimes we can’t do everything by ourselves. We need each other’s help
and we always have the table in group form and never like separate unless it’s a major test.

Opportunities to include more student collaboration and project based learning was more apparent with the seventh grade Pre-AP students, while the regular eighth grade students needed more individualized, teacher facilitated instruction. All of the teachers agreed that with the flipped learning instructional model there was more time to re teach and working with students individually. One teacher noted, “When the students were able to come to class, instead of having to teach them how to do the problem, we were able to do more engaging activities to show them why it works and do more problems in class.” The teachers also felt that because of the flipped learning instructional model they were able to do more interactive activities that were more meaningful to the students.

The administrators noted through their observations that students were much more attentive and focused during class time. They indicated that the teacher served more as a facilitator among their students, than when providing direct instruction. The principal and assistant principal believed there were much more student led discussions about the math lesson as well as more guided practice.

**Research Question Three- Challenges of Video Delivery**

Research Question Three asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Findings reported as emerging themes included the following: There were few significant challenges with student Internet accessibility, video preparation was time intensive and few video comprehension challenges for students
Few significant challenges with student internet accessibility. Generally speaking, most participants indicated that internet accessibility was not a significant issue, but there were a few issues that students explained during their interviews. One student expressed a concern about the videos that were provided to be downloaded prior to leaving school. He noted that sometimes the teacher would not have adequate time to post the video before school was over and therefore students who did not have internet, were not able to view the video until the next morning. He commented, “Sometimes she [teacher] wouldn’t post it when we’re at school. She [teacher] posted it like six o’clock, or like at five when we were already at home then.” Another student who could only use a parent’s smart phone to get on the internet, found that it was not always convenient to wait for the parent to come home from work that evening because the parent would often be delayed.

Video preparation was time intensive. Among students, several had expressed that it took their teacher a considerable amount of time to prepare and video tape the instructional lessons. Some noted that because their teachers did not have enough time to make the video lessons that the students were not always able to get two instructional lessons with regularity. One other remark by students was that the videos were limited to only 15 minutes and that the teachers had to rush through the lesson to meet that timeline.

The teachers all concluded that the preparation time to make the videos were the most difficult aspects of instructing from the flipped learning model. A teacher remarked, “The biggest issue we had, that took the longest time was to figure out how we’re going to implement it. What are we going to use? What apps are we going use? ” They agreed that after they established which programs to use, and how to implement the program, the
process became easier and quicker to accomplish. They also felt that after they accomplished the task of creating the videos and provided them to their students, that all of their efforts were beneficial to their students’ learning.

The administrators also recognized from their observations that creating the videos was time intensive and they gave credit for all three teachers for their patience and hard work in this endeavor. Mr. Bingham commented:

I would just say, yes it's worth doing, but you have to have people that are dedicated and willing to put in the time. Because it does take time to produce something of high quality. But that said, you have a product going into the next year that you can build on.

**Few video comprehension challenges for students.** Overall, the participants did not believe there were any serious challenges regarding student comprehension of the instructional videos. The students indicated that there were no difficult problems understanding the teachers during the video instruction, however, they noted if there was a word, phrase or concept that they didn’t understand they would either communicate through Schoology [LMS] to ask the teacher for clarification, or write down questions in their notes to ask the teacher the next day.

The teachers did not find that the student comprehension level of the instructional videos posed any serious challenges. One teacher believed that students benefited from being able to repeat the instructional videos to better understand what was being taught, but when a student had trouble with a particular word or phrase they could ask the teacher to explain it the next day. Another teacher expressed that she consciously attempted to keep her videos on a basic and understandable level so that students would not be
confused or overwhelmed. She also pointed out that her videos were meant to be more fundamental and that time in class she would provide more complex examples of a math concept or equation.

The principals believed that the use of visual context clues was an added feature that helped students to better understand certain abstract concepts of math problems. Mr. Bingham did share his concern about the level of understanding for students whose first language was not English. He believed that there may be some issues with understanding academic language used in the instructional videos. He also acknowledged that he believed the flipped learning instructional videos were helpful to those students because of the ability to repeat and replay. The principal also made the point that the videos provided added pictures, illustrations and other links that gave additional support for all of the students. Dr. Hershel stated:

That was part of the video, so it was really easy for students to really have background knowledge on what they were because they were able to give them a visual or context clues, so they can understand what that looks like.

**Research Question Four-Recommendations**

Research Question Four asked: What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model? Findings reported as emerging themes included the following: Recommendations to improve flipped learning video delivery, teachers need leadership support, and professional development, and encouraged future usage of video delivery in flipped learning.
Recommendations to improve flipped learning video delivery. For students, three dominant suggestions came for the interview groups. First, the students believed that the videos would have been more effective if the teachers could have given more examples. A number of students felt that having more examples would have expanded their understanding of the different math problems. One student stated, “I like the way the flipped videos were except they could use more descriptive examples or techniques. But otherwise this was like the way it was is perfect.”

Along with having more examples, the students added that it would have been better if the videos were longer. Most of the students felt that in order to show more examples of how to work out more equations it was necessary for the videos to be longer. The last theme of student responses was that they wanted other content teachers to use the flipped learning instructional model. A student stated, “I think to improve flipped learning, other subjects could start using it so that we don’t have everything in our brain.” They shared that it would enhance their learning among their other classes if they would be able to view and store instructional lessons from other teachers.

Teachers need leadership support and professional development. For teachers, their recommendations to improve the flipped learning instructional model included providing teachers with support and effective professional development to increase understanding and implementation of the flipped instructional learning model. All three teachers stressed the importance of good training and leadership support was needed in order for the flipped model to be successful. One teacher commented, “If you’ve never been to a staff development on flipped learning and try to implement it, it’s definitely a hard thing to do.” The teachers also indicated that principals need to provide
additional time built into the school day that allows teachers to work together in the creation of the flipped instructional learning videos.

The administrators agreed with the teacher perceptions when sharing that professional development and leadership support was an important aspect success when using the flipped learning instructional model. Both administrators noted that in order for the flipped learning model to be effective it required teachers who were committed and dedicated to the time and efforts required of the flipped instructional model.

Mr. Bingham noted:

We would probably need to look at staff development as a campus. And maybe getting them to train other teachers in this way or we can have a more targeted approach and try to recruit two or three teachers to start implementing these things and have it grow out.

They both attributed the positive outcome of the first year their school piloted the flipped learning model to the expertise and collaboration of the teachers.

**Encouraged future usage of video delivery in flipped learning.** Among all participants in this research, all resoundingly agreed that the flipped learning instructional model was a positive and beneficial method of teaching students eighth grade math and that it should be recommended to be used in the future not only for math courses, but other content classes as well. The campus principal responded when asked about the future usage of the flipped learning instructional model saying:

I would like to see this again, embrace it with our faculty in the future but I do believe it's going to have to be, the foundation is going to have to be laid with some professional development and some real examples.
The participating students all shared that learning from the instructional videos was a very meaningful and engaging experience. The students believed they were more supported by their teachers who used the flipped learning instructional model, and felt their confidence increased as a result of this method of teaching. The students also indicated that their level of stress was reduced as a result of learning from the flipped instructional model. A student remarked, “It benefits not just the students, but also the teacher. It helps us not to be so stressed about this one subject because in class if a certain person doesn’t get it the teacher can help.”

The teachers praised the flipped learning instructional model, and felt their experiences in teaching from this method were a great benefit to all of their students. Teachers noted that the continual feedback they received from their students reinforced their belief that they would definitely be using the flipped learning instructional model next year. One teacher encouraged other educators to incorporate flipped learning into their lessons because of the high interest students shared and the increased engagement level that was gained as a result. Another teacher commented, “I think that if every class was a flipped class, like a flipped learning environment, I think that it would be amazing for students, especially. Like I said, technology, that’s where this world is going and so I think they need that.” The teachers felt that technology is a valuable asset to use for student instruction and believed that the flipped learning instructional model was a successful example of effective technology.

The administrators both agreed that future usage of the flipped learning instructional model is recommended. They also noted that such a shift in instructional
methodologies required a significant amount of professional development and leadership support in order for flipped learning to be effective.

Summary

In Chapter IX an analysis of the data was provided and Chapter X was the summary, conclusion, implications, and recommendations for future research related to the flipped learning instructional model.
Chapter X

Summary, Conclusion, Implications, and Recommendations

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. This research explored the phenomenon of individuals who had lived experiences participating in flipped classes to observe and elicit impressions and consensus about their experiences.

This chapter contains an overall summary of the research, including the stated problem, the purpose statement and research questions, a review of the study design, the participants, and the data collection analysis. The second half of the chapter includes a summary of the major findings, conclusions, the implications for practice, recommendations for future research and concluding remarks.

Summary of the Study

Today’s learners are resilient and tenacious when acquiring knowledge from various tools of technology (Edwards, 2005). Amidst the changes in education as technology redefines the boundaries of learning, students no longer have to learn from a singular moment or snapshot of time spent in a class room (Clemens, Fathers, & Izumi, 2013). This study served to explore an alternative way in which a group of intermediate students received their math instruction through the flipped learning instructional model in order to learn more about this method of teaching. This research provided an in-depth
query directed toward twenty participants; including fifteen students, three teachers, and two administrators, about the support, benefits, challenges, and recommendations experienced from their involvement of the flipped learning instructional model.

**Overview of the problem.** Koller (2011) noted that a pressing concern in today’s student education is the lack of effort by many schools to move away from the *monolithic hour long lectures* that has been the firmly established method of teaching students since the 19th century. As schools are competing with other industrial countries, it is vital that schools leverage the usage of technology while incorporating more engaging and interactive methods of providing instruction (Vander Ark, 2013). The flipped learning instructional model provides one possibility to link technology to learning while introducing an innovative method to provide meaningful instruction to students (Hamdan et al., 2013; Johnson, 2013).

In addition to finding effective methods of using technology to deliver instruction, another area of concern was math performance among eighth grade minority students (Cheung & Slavin, 2011). According the National Assessment of Educational Progress (2012), 13 year old Black students underperformed their White counterpart peers in math by 28%. Among 13 year old Hispanic students the gap was 21%. The National Education Technology Plan 2010 urged that educators utilize interactive methods of technology to support student learning in math in order to engage in higher level of ideas and complex problem solving (U.S. Department of Education Office of Educational Technology, 2010).

**Purpose statement and research questions.** The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade
math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. Through the use of open ended interview questions directed towards teachers, administrators and students the following questions guided this study.

1. What technologies support video delivery to engage students in a flipped learning instructional model?
2. What are the benefits to using video delivery to support student engagement in an eighth grade math flipped learning instructional model?
3. What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?
4. What are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

Review of study design. Creswell (2013) provided a detailed account of the philosophical assumptions that highlight key aspects of a qualitative study. He described the purpose of qualitative research as the opportunity for the reader to examine multiple viewpoints of individuals who share a connection or phenomenon that result in a common theme. A phenomenological study explores the experience among participants who have both similar and divergent perspectives of a shared event (Creswell, 2013). This research included the shared accounts of 20 participants who were involved in the flipped learning instructional model and their perceptions of this experience.

Creswell (2013) defined a bounded case study as a methodology or a design to study a set event that is limited to place and time. This research is defined as a bounded case study based on the fixed location of the campus in which the study took place, and
the limited time in which it took place of three months. The data collected was drawn from focus group interviews in which participants answered questions about their experiences and involvement of the flipped learning instructional model. The researcher extracted clusters of themes and commonalities from the different perspectives of the different focus groups.

Participants. The individuals who participated in the research were among three different groups including students, teachers, and administrators. Five focus groups were created to interview the participants. The students were both male and female ranging from the ages of 12 to 15, of primarily Hispanic descent. The students were a sample representation of the campus demographics and were also identified as at risk students. There were three math teachers who provided instruction to eighth grade math students through the flipped learning instructional model. Among the teachers, one was a female Hispanic first year teacher, and the other two were female Caucasians with five or more years of teaching experiences. The administrators who observed the flipped learning instructional model were both Caucasian males. One was the eighth grade assistant principal and the other was the campus principal.

Data collection and analysis. This study was developed using semi-structured focus group interviews, based on open-ended questions directed toward participants about their experiences involved with the flipped learning model. The researcher sought to find clusters of meaning based on the shared experiences of all participants. This data was used to extract key themes and shared opinions of the subjects in order to better understand and learn from their experiences. Five focus groups were assembled for the interview process. All focus group interviews were audio recorded and transcribed. Key
elements that emerged from the group interviews that included significant statements and frequent phrases were analyzed and arranged in thematic perceptions of all the participants. The researcher recorded all thematic groupings to summarize key findings of the study.

**Summary of major findings.** The research questions based on this study were the framework for the findings displayed below:

Research Question One- In research question one the author asked: What technologies support video delivery to engage students in a flipped learning instructional model? The technologies were as followed:

- Netbooks and other electronic devices were available to all students.
- Internet was accessible for all students from various sources.

Research Question Two- In research question two, the investigator asked: What are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? The benefits were as followed:

- Students had the ability to pause and repeat instructional videos as needed, in addition to being able to access the instructional videos any place and any time.
- Student engagement significantly increased due to high interest instructional videos that incorporated humor, music and relevant examples of student school experiences.
- Teachers were motivated by more individualized time and interactive facilitation with students.
• Student confidence in math performance was increased, as mastery of concepts improved and stress levels were reduced from viewing instructional videos.

• Students claimed improved memory of math concepts due to fewer distractions from the flipped instructional video usage watched outside of school.

• Students perceived academic growth due to more focused participation and collaboration among peers.

Research Question Three- In research question three, the researcher asked: What are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model? The challenges were as followed:

• Some students had difficulty in finding a consistent source for internet usage.

• It was time intensive for teachers to learn, process, and implement the flipped learning instructional videos.

• Some students had difficulty comprehending certain aspects of the video instructional lesson.

Research Question Four- In research question four, the researcher inquired about the recommendations for using video deliver to support student engagement in an eighth grade math flipped learning instructional model? The recommendations were as followed:

• Students requested more examples and longer videos.

• Teachers requested administrative support, professional development and time.

• Strong recommendations were made by students and teachers to continue using flipped instructional videos.

• Participants requested that other content teachers use the flipped learning model.
Conclusions

Results from this phenomenological qualitative research strongly support that student engagement was significantly higher during the three-month period in which students were provided instruction from the flipped learning model. The conclusions from this study were drawn from three different perspectives as seen from those being instructed, those teaching, and those observing the flipped learning instructional model. By triangulating the data based on these three groups strengthened the evidence that suggest the flipped learning model is an effective method for increasing student engagement and improving student motivation among the participating eighth grade math classes.

While there was an indication that student academic performance was improved based on the opinions of the participants, the research did not have any conclusive evidence to either support or deny those perceptions. However, according to U.S. Department of Education Office of Educational Technology research has shown that increasing student engagement and empowering them in their learning does correlate with improved academic achievement (U.S. Department of Education Office of Educational Technology, 2010). Herreid and Schiller (2013) also support the claim that increasing student engagement, as it related to the flipped learning instructional model, improves student learning. Hamdan et al., (2013) noted that while more research is needed to learn about the academic benefits from the flipped learning instructional model, there are substantive accounts from educators that reported academic gains from students when provided the flipped learning instructional videos.
Another conclusion drawn from this research was the high interest the students had in regards to the instructional videos led to higher engagement, participation, and confidence levels. Students from all focus groups had very positive attitudes regarding watching the instructional videos and the benefits it provided them. The efforts the teachers applied to create quality, engaging and substantive videos resulted in a key component to the success of the flipped learning instructional model. Kevin Steele (2013) confirmed that the successful design of creating instructional videos should include a clever incorporation of music, pop culture, and humor to keep the attention of students. While teachers acknowledged the implementation of the flipped learning model was time consuming, they recognized the value and benefits reaped from their efforts and found it to be well worth the commitment they put into this initiative.

This study also confirmed what research has stated with regards to providing professional development for teachers in order to successfully implement the flipped learning instructional model. The teachers indicated that the professional development they received prior to enacting the flipped learning instructional model was essential to the success they had this year. In order to understand the different types of programs to use which included recording software, digital equipment and hardware, the participating teachers stated that the learning process would have been much more difficult without the guidance and expertise they received from the professional development courses they attended. Kevin Steele (2013), described in his seminar, The Flipped Classroom: Cutting-Edge, Practical Strategies to Successfully “Flip” Your Classroom, the necessary steps needed to ensure the creation of a quality, high interest instructional video is dependent on the amount of expertise and guidance provided to teachers.
Implications for Practice

As technology continues to be a catalyst in the evolution of change taking place in classroom instruction, more effort needs to be made by educational leadership to learn about substantive, efficient, and effective ways to implement technology driven student learning. This research has provided one possibility of increasing student engagement in learning through the flipped learning instructional model. The findings in this study indicate that several elements are necessary for the flipped learning instructional model to be effective, including teacher support, professional development, technology resources.

Teacher support. Kevin Steele (2013) outlined key elements for administrators to provide when supporting teachers who are implementing the flipped learning instructional model. He indicated that teachers must have adequate time to adjust to their new system of instruction and they need to have a strong technological support team who can guide them through the process. He also noted that administrators should promote and communicate to parents on behalf of teachers essential information about flipped learning, allow extensive time for planning and professional development, and finally listen to teachers and be emotionally in tuned with their concerns.

Professional development. In order for the flipped learning instructional model to be implemented with an optimum successful outcome, professional development among both teachers and administrators is an essential component (Speak Up National Research Project & Blackboard K-12, 2013). The dramatic shift of instructional time with the flipped learning model necessitates a highly structured framework that includes teacher collaboration, administrative support, technological skills, and a commitment to
time and resources. The findings in this research emphasized the value in providing
quality professional development for the participating teachers.

**Technology resources.** Administrators should provide a positive, fully supported
network of resources for teachers to utilize in order to integrate new technology into their
instructional model (Webb, 2011). Educators must be provided the essential resources to
create instructional videos along with consistent technological support in order to
implement the flipped model. In addition, schools must ensure that students have the
capabilities of accessing the instructional videos outside of class, to ensure effectiveness
of student learning.

Funding to support technology usage outside of school including mobile devices,
video recording software and hardware is a substantive issue when considering the
implementation of the flipped learning instructional model. Without the necessary
resources for students to view the instructional videos beyond the school campus, success
would be limited.

**Recommendations for Future Research**

In the future, more quantitative research about the flipped learning instructional
model in relation to academic benefits would add value to the body of knowledge. More
case studies that included different age groups and ethnicities would serve to better
understand the effectiveness of the flipped learning instructional model across all levels
of learning and content areas. Furthermore, research that would provide proven and
definitive implementation strategies for educators in order to assist teachers in making the
transition from direct instruction to the flipped learning instructional model would be
very valuable.
**Concluding Remarks**

Throughout this research the underlying factor that supported so much of the individual comments and perceptions was building student engagement. The flipped learning instructional model is only one method among a boundless number of technology resources that are impacting the way students want to learn. Listening to the level of excitement when students shared their stories about how the instructional videos influenced their learning offered a glimpse of what the future of education may hold if educators open their minds to the possibilities. I found that students who participated in the flipped learning instructional model felt more confident, more focused, and more interested in learning. That alone gives reason to explore these innovative methods of teaching.

My experience of interviewing students, teachers and, administrators, immeasurably added to my knowledge of how the usage of video instructional lessons can impact the learning process for students. All participants expressed the positive benefits of not only providing instruction outside of the classroom that can by taught any place, any time, and as often as needed, but the added assistance of teacher facilitation and student collaboration in class. Such overwhelming affirmation of an instructional strategy at least merits the need to further explore this dynamic learning tool for students.

One challenge for integrating the flipped learning instructional model is to convince educators that this method of teaching has great potential and should be explored with an open mind to the fundamental change in the way educators teach and think about student learning. I believe that technology has created a seismic shift in the way that students learn, increasing their level of flexibility, adaptability and creative
thinking to a level that is unprecedented. Flipped learning using videos as a key instructional component is just a small step in the revolution of technology learning. However it is the first of many new doors that are opening that educators have a responsibility to pass.
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List of Appendices

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Appendix A

IRB Informed Consent Approval

Memorandum
Office of Research & Sponsored Programs
Institutional Review Board
Lamar University

Date: March 25, 2014
To: Keely Coufal
From: Office of Research & Sponsored Programs Administration
Re: Request for approval by IRB

Your project, "Technology Education and the Flipped Learning Model: Perceptions of Engagement and Effectiveness" was reviewed and approved. It qualifies for exemption because the research employs standard methods and procedures for testing and educational purposes, involves minimal risks to subjects, and makes participation strictly voluntary. This approval is for a period ending one year from the date of this memorandum. Please make timely submission of renewal or prompt notification of project termination. Your IRB # is 73414128.

Remember to obtain approval from the Institutional Review Board before instituting any changes in the project. The Board wishes you every success in your research endeavor.
Appendix B

Certificate of Protecting Human Research Participants Course

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Keely Coufal successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 02/10/2013
Certification Number: 1114580
Appendix C

Guided Protocol Questions

The purpose of this qualitative phenomenological bounded case study was to explore the perceptions of eighth grade math students, their teachers, and their administrators regarding the use of video delivery to support engagement in a flipped learning instructional model. This research will explore the phenomenon of individuals who have lived experiences participating in flipped classes to observe and elicit impressions and consensus about their experiences. Through the use of open ended interview questions directed towards teachers, administrator and students the following questions will be as the focus of this study.

Guided Protocol Questions for Focus Groups

Research Question One: Technologies Supporting Video Delivery to Engage Students
What technologies support video delivery to engage students in a flipped learning instructional model?

1. Were students able to access the internet and use any other electronic devices besides their school issued netbook to view their instructional lessons at home?

2. Describe student experiences of using technology outside of your school to view your assigned lessons?

Research Question Two- Benefits of Video Delivery for Student Engagement

Research Question Two asked what are the benefits of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?
3. Overall, describe what your experiences have been in terms of being taught through the flipped learning model?

4. From your experience as students who were instructed through the Flipped learning model do you believe that levels of engagement in your learning were higher, lower, or the same as traditional direct instruction? Provide descriptions of your observation to support your answer.

5. Has this experience of learning through the Flipped model been more beneficial for your math education?

6. Describe what your time in class was like when you were being instructed through the flipped learning video recordings?

Research Question Three- Challenges of Video Delivery

Research Question Three asked what are the challenges of using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

7. Were there any challenges in relation to accessing the internet for students to watch the instructional videos?

8. Were there any challenges concerning the time needed for teachers to produce and implement the flipped learning instructional model?

9. Describe any advantages or barriers that students may have had understanding the video lessons they viewed outside of school?
Research Question Four-Recommendations for Video Delivery Instruction

Research Question Four asked what are the recommendations for using video delivery to support student engagement in an eighth grade math flipped learning instructional model?

10. After students learned from the Flipped model in math, provide any recommendations that could improve the development, process and implementation of this method of teaching.

11. As a result of students being taught through the Flipped learning model, do you feel it is beneficial to continue using this method of teaching in the future as a means to increase student academic progress and engagement?
Appendix D

Parent & Student Subject Consent to Participate in Research

Lamar University
Department of Educational Leadership
College of Education

PARENT & STUDENT SUBJECT CONSENT TO PARTICIPATION IN RESEARCH

Title of Study: Technology Education And The Flipped Learning Model:
Perceptions Of Engagement And Effectiveness

Name of Investigator: Keely Coufal
Phone Number: 713-822-0798

I understand that I am agreeing to participate in a research study for the purpose to understand my perceptions and opinions about the Flipped Learning Model. I will be asked a series of interview questions and the investigator will record my answers. My name will not be used and the confidentiality of my responses will be protected. The entire procedure will take 20-30 minutes. My participation will take place among a small focus group of my peers in the conference room area at my school, with the researcher as the interviewer. I can decline to answer any questions should I choose to do so.

Risks

The interview is entirely voluntary and does not entail any foreseeable risks. I understand that I may quit at any time. All data will be maintained in a locked file in the investigator’s office for one year and then shredded. Consent forms will be forwarded to the Office of Research and Grants, John Gray Center, Building C, Box 11019, Lamar University.

Benefits

Benefits of participation may include a contribution to scholarly research that identifies issues of effective learning models. There will be no direct benefits to the subjects.

Participation

I understand that my participation in this study is voluntary and that I may withdraw from the study at any time. My refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled. I understand that I will not be compensated for my participation. An offer has been made to answer all of my questions and concerns about the study. I will be given a copy of the dated and signed consent form to keep.
As the parent of ______________________________________

Check one

☐ I am providing my consent to allow my child to be interviewed for this research.

☐ I am not providing my consent to allow my child to be interviewed for this research.

As the student ______________________________________

Check one

☐ I am providing my consent to be interviewed for this research.

☐ I am not providing my consent to be interviewed for this research.

Parent Signature ______________________________________  Date________

Student Signature ______________________________________  Date________
Appendix E

Subject Consent to Participation in Research

Lamar University
Department of Educational Leadership
College of Education

SUBJECT CONSENT TO PARTICIPATION IN RESEARCH

Title of Study: Technology Education And The Flipped Learning Model:
Perceptions Of Engagement And Effectiveness

Name of Investigator: Keely Coufal
Phone Number: 713-822-0798

I understand that I am agreeing to participate in a research study for the purpose to
understand my perceptions and opinions about the Flipped Learning Model. I will be
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to which I am otherwise entitled. I understand that I will not be compensated for my
participation. An offer has been made to answer all of my questions and concerns about
the study. I will be given a copy of the dated and signed consent form to keep.
Check one

☐ I am providing my consent to be interviewed for this research.

☐ I am not providing my consent to be interviewed for this research.

Teacher/Administrator Signature

_________________________________________ Date

If you have any questions about the research or your rights as a subject,
please contact Ms. Twila Baker,

Chair, Institutional Review Board, 409-880-8933.
Appendix F

Letter of Invitation

March 6, 2014

Keely Coufal
9715 Cottage Street
Pearland, TX. 77584

Dear __________________________:

As a doctoral candidate at Lamar University, I am conducting a study for my dissertation to understand and to explore the perceptions of 8th grade math students, their teachers, and administrators who participated in the flipped learning instructional model. The purpose of this phenomenological qualitative study is to research the phenomenon of individuals who have lived experiences participating in flipped classes to observe and elicit impressions and consensus about their experiences. Through the use of open ended interview questions directed towards teachers, administrator and students this research focuses on how flipped learning is different from traditional models, how it supports economically disadvantaged and diverse student populations, and if it increases student engagement. The results of this study will contribute to the current dialog and interest in the flipped learning model among educators.

During the last week in April, 2014, you will be asked to participate in an open-ended interview pertaining to your perceptions of the flipped learning model. The interview will take no longer than 30 minutes. Your responses will be completely anonymous, and no individual names or institutions will be recorded during the course of this interview. The data will be stored electronically in a secure place.

This study has been approved by the Lamar University Institutional Review Board. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or Lamar University. On completion of this study, I will share a summary of the findings with you. Your input is extremely valuable for the preparation of future educational leaders in Texas.

Sincerely,

Principal Researcher: Keely Coufal
713-822-0798

Dissertation Chair: Diane Mason
409-880-8676
Keely Coufal is a native Houstonian in Texas. She earned her bachelor’s degree in Literature from the University of Houston Clear Lake in 2001. She taught as a reading and English teacher for nine years in the Pasadena school district. In 2009 she received her master’s degree in Educational Administration from Lamar University. In 2010 she became an assistant principal at Park View Intermediate where she currently works today. In 2014 she received her doctorate’s degree in Educational Leadership through Lamar University.

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