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A Modified Flipped Classroom: Action Research Using an In-Class Flip to Measure Student Achievement and Perceptions Within a High School Multimedia Course

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A MODIFIED FLIPPED CLASSROOM: ACTION RESEARCH USING AN IN-CLASS FLIP TO MEASURE STUDENT ACHIEVEMENT AND PERCEPTIONS WITHIN A HIGH SCHOOL MULTIMEDIA COURSE

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DEDICATION

This work is dedicated to my loving family. I could not have been successful without my husband, children, and parents.

To my husband, my pillar of support, whose belief in my dreams never wavered, and whose love provided the steady foundation upon which I built this endeavor. Your sacrifices and encouragement propelled me forward, reminding me that no challenge is insurmountable with love by my side.

To my three beautiful children, whose boundless joy and understanding filled our home with warmth and inspiration. Your patience during long weekends and late nights of study and your unconditional love fueled my determination, showing me the true meaning of perseverance and dedication. I hope that I can be an inspiration to you one day to fight hard to fulfill your dreams.

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ABSTRACT

The purpose of this action research study was to implement and evaluate the impact of a modified flipped classroom approach on students' ability to use Adobe Premiere Pro in a Multimedia course at Jefferson High School. The current pedagogical model for teaching the video editing software is not conducive to student achievement and students need additional instruction after in-class demonstrations. A major issue in teaching software programs using in-class demonstrations is that when students do not understand the applications of the program, the teacher has to stop demonstrations and walk around the classroom to help struggling students while other students are left to wait. Similarly, if students do not grasp the concepts during the in-class demonstration, they may struggle to work independently. When a student is absent, this also poses a problem because they miss the in-class demonstrations. In these situations, the teacher has to reteach the students, which takes away valuable class time.

A modified version of the flipped classroom, called the in-class flip, was developed to alleviate some of the traditional flipped classroom issues such as the students not coming to class prepared or not having adequate technology outside of the classroom. The participants in this study consisted of the 14 students enrolled in the Multimedia II course at Jefferson High School in the Spring 2022 semester. The mixed methods design used the quantitative data collection methods of pretest-posttest, two student artifacts, and post-survey, while the qualitative data consisted of open-ended survey questions and semi-structured student interviews. The research questions focused

on the following: (1) How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School? and (2) What are the students' experiences with the modified flipped classroom in a Multimedia course at Jefferson High School?

Quantitative data analysis showed a significant increase in mean scores between the pre-test and posttest. It also showed that the majority of students became proficient in using Adobe Premiere Pro. The qualitative data analysis showed that students had an overall positive experience with the modified flipped classroom. Highlighted advantages included self-efficacy and the self-paced nature of the model.

The findings of this study indicate that the modified flipped classroom is an acceptable instructional method for learning video editing software and can be used for learning other computer software programs at the high school level. A call for further research includes the use of the in-class flip in other subject areas.

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INTRODUCTION

National Context

Today's learners have a preference for learning by watching others, working independently and at their own pace, and being able to apply their learning to multiple areas instead of just one practice item (Seemiller & Grace, 2017). This calls for varied approaches within the realm of educational technology to meet the needs and wants of today's youth. Educational technology, as supported by the Association for Educational Communications and Technologies (AECT), "is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources" (Januszewski & Molenda, 2008, p.1). Today's teachers are challenged with aligning their practices with the use of technology to facilitate learning.

One way that schools are promoting the use of technology within the classroom is by offering classes such as Multimedia. Multimedia courses typically involve introducing a variety of computer software programs that promote the creation of digital presentations, including graphics, audio, and video. The International Society for Technology in Education (ISTE) is an organization that promotes the pedagogy in learning with technology. ISTE (2017) has a set of educator standards, by which multimedia teachers strive to follow and these include:

> Educators design authentic, learner-driven activities and environments that recognize and accommodate learner variability. Educators: a. Use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs. b. Design authentic learning activities that align with content area standards and use digital tools and resources to maximize active, deep learning. c. Explore and apply instructional design principles to create innovative digital learning environments that engage and support learning. (p.2)

When learning computer programs, students need step by step instructions, examples, visual aids, and clarity and ease of the program in order to be successful (Cong et al., 2019; Fransson et al., 2019; Ulloa, 1980). In a traditional multimedia classroom, most of the class time is spent with the teacher giving demonstrations of the program and the students following along on their own computers (Enfield, 2013), with the teacher emphasizing the explanation of the software, but not cultivating students' innovation with the program (Cong et al., 2019). A major issue in teaching software programs is that when students do not understand the applications of the program, the teacher has to stop demonstrations and walk around the classroom to help struggling students while other students are left to wait (Enfield, 2013). This consumes time that could be used for students to develop their design capabilities within the program and to work on their own projects. The average number of hours in a school day nationwide is 6.64 hours (National Center for Educational Statistics [NCES], 2008). If a high school is designed to have seven class periods a day, that leaves about 50-55 minutes per class period. With an average class length being less than an hour, this does not provide enough time to work

independently after in-class demonstrations especially when there are interruptions if students need help during the demonstration.

When a student is absent, this also poses a problem because they miss valuable classroom instruction and demonstrations. In a 2015 report, 64.1% of seniors had missed one or more days of school within the last month (National Center for Educational Statistics [NCES], 2019). Chronic absenteeism happens when a student is absent for more than 15 days within a school year (United States Department of Education [USDOE], 2019). According to the U.S. Department of Education (2019), about 20% of high school students have chronic absenteeism. Whether the student is absent for one day or has chronic absenteeism of 15 or more days, the in-class demonstrations given by the teacher are missed. This causes the teacher to have to use class time to repeat demonstrations of the programs. If there are multiple students absent on different days, the teacher is re-teaching the same material several times, which is taking away time to help troubleshoot issues, provide guidance, and give formative assessments to the rest of the students in the class.

In addition to assisting absent students when they return, students who do not grasp concepts after the first demonstration may need to be retaught the content. Students have varying cognitive processing speeds (Braaten & Willoughby, 2014; Cepeda et al., 2013) which causes them to learn at different rates, especially in those with learning disorders (Moll et al., 2014). These students may need more than one demonstration of a program. When the teacher has to reteach the computer software programs to those students who are on the lower end of cognitive processing speed, it takes away valuable time within the class.

A possible strategy to help teachers from having to reteach lessons and overcome problems such as absenteeism and varied cognitive processing speed, while still fulfilling the needs and wants of the current generation, is to implement a flipped classroom approach. Flipped classrooms have been a major topic in instructional design within the last decade. They can be used in many industries and for various subjects. A study conducted on multimedia classes at California State University Northridge found that the advantages of a flipped classroom included an increase in students' confidence levels in using the new technology, an increase in student engagement, instructors reducing the amount of time to prepare for classes, reduced repetitive instruction, and that "the videos provided a good resource to direct students to when they were absent from class" (Enfield, 2013, p.25). Other studies have shown the flipped learning model promotes higher student achievement than lecture-only classrooms (Bernard et al., 2014; He et. al., 2019; Peterson, 2016), increased time for teacher-student interaction (He et al., 2019; Moffett, 2015; Peterson, 2019), and the student perceptions of course quality and effectiveness of the instructor are high (He et al., 2019; Peterson, 2016). The implementation of a flipped model could be a suitable approach to overcoming difficulties in learning computer software. It gives students an opportunity to learn at their own pace, revisit material whenever and how often they choose, and it provides an equal learning opportunity to students who are absent, providing a standardization of instruction for all students. The flipped model could also benefit the teacher because it allows them to use their time to answer clarifying questions and assist students in need rather than re-teaching the material multiple times.

Local Context

The Missouri Department of Elementary and Secondary Education (DESE) provides a Business Marketing and Information Technology Education (BMIT) resource book with approved courses and descriptions. The BMIT book describes the Multimedia course objectives as a learning environment in which students will be able to produce electronic presentations, that include the creation and manipulation of audio and visual media formats (Missouri Department of Elementary and Secondary Education, 2020a). To keep anonymity of the participants, Jefferson High School and Jefferson School District will be used in place of the true high school and school district names. The Jefferson School District 2022-23 Course Enrollment handbook states the Multimedia I course description as:

> This course will introduce students to the basics of multimedia, covering concepts such as Podcasting, video production, sound and video capture, using various editing software for different multimedia applications. The course provides hands-on experiences for creating beginning computer multimedia productions. Students will work with multimedia software to develop electronic presentations. They will learn how to manipulate text, art and graphics, photography, animation, audio, and video for presentations in various media formats. (p.5)

From there, the students will move to Multimedia II, where the main focus is on using Adobe Premiere Pro to do more advanced video editing. The handbook has the following description of the course:

> Multimedia II is the continuation of Multimedia I. Students will continue to develop skills in project management and collaboration, design, research and

> communication, and professional video production. Each project will add more challenging skills as students learn storytelling, capturing and editing video and audio, web, or digital videotape. Completion of Multimedia II can lead to accreditation as an Adobe Certified Associate in Video Communication (ACA) which is an Industry Recognized Credential beneficial to students entering the field of technology after graduation. (JSD, 2022a, p.5)

The Multimedia students at Jefferson High School received an in-class demonstration when a new computer software program was introduced. The students then had time to work in class on projects using the newly learned program. The data from semester one of the 2020-21 school year based on student submissions of the first three projects for each new program that was introduced, showed that projects were turned in late or not at all 63% of the time. The anecdotal observations showed that the students needed additional instruction in order to be successful in the class.

I have been a Multimedia teacher for over eight years and every year I have to re-teach how to use software programs to multiple students after giving in-class demonstrations at the beginning of the unit. Students needed additional instruction when they were having difficulties navigating through the programs or when they missed the in-class demonstrations due to absences. The students that I have taught have been from multiple schools and have consisted of various economic backgrounds in all grades 9-12. This problem has been consistent throughout.

Absenteeism is one of the major causes of having to re-teach the computer programs. According to a data report in 2017 by FutureEd at Georgetown University, Missouri had over 78,000 chronically absent students (Jordan & Miller). The 20 students

in the Multimedia course at Jefferson High School during first semester of the 2020-21 school year had an average of 12.7 absences in 83 instructional days. There was only one student who did not miss any days during the semester.

Another major factor in having to reteach the computer software programs was the varying speeds and levels of learning within the classroom. Missouri has an average incident rate of 13.54% for school age students with disabilities compared to the total public school enrollment population (Missouri Department of Elementary and Secondary Education, 2020b). Jefferson School District is just slightly below this average at 11.77% (DESE, 2022). In addition to students that have learning disabilities, the cognitive processing speeds of all students vary, as stated in the previous section.

In the Jefferson School District, the student to teacher ratio is 18:1 (JSD, 2022b). The school district population is 87% White, 4% Black, 3% Hispanic, 3% Asian, and 6% reported as other (US Census Bureau, 2019). The Median household income within the district is $106,167.00 and over 50% of households have parents with a Bachelor's Degree or higher (NCES, 2018). According to the 2021-22 Jefferson School District Fast Facts sheet (2022b), published online by the district, they had a graduation rate of 96.4%.

When I started the Educational Doctorate program at the University of South Carolina, I was immersed in a large amount of educational technology research. I kept coming across the flipped classroom approach and I could not stray away. It was fascinating to me how something so unconventional, could be so simple and effective. I continued to think about my Multimedia classes and the issues that I was facing, especially during a pandemic, when the need for innovative and flexible ways of teaching were becoming so prevalent. Absenteeism and the varying cognitive speeds within my

classroom have caused significant struggles in the students learning the computer software programs. I was interested to see if implementing this model in my classes would help to foster student achievement and be well received by the students, while providing me more time in the classroom to promote active learning.

Problem Statement

The current pedagogical model for teaching Adobe Premiere Pro in a Multimedia course at Jefferson High School was not conducive to student achievement and students needed additional instruction after in-class demonstrations.

Purpose Statement

The purpose of this action research study was to implement and evaluate the impact of a modified flipped classroom approach on students' ability to use Adobe Premiere Pro in a Multimedia course at Jefferson High School.

Research Questions

This research explored the following two questions:

1. How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School?
2. What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School?

Researcher Subjectivities and Positionality

I have always liked school and thought of myself as a lifelong learner. In 2020, I started in a new district where advanced degrees are encouraged. Being unable to get back into the classroom during the Covid-19 pandemic left me with a lot of time to think about my future. I felt like this was the time. I chose educational technology because I

have had a passion for learning and using technology since becoming a teacher. I thought that becoming a business teacher meant that I would be mostly teaching marketing, business law, accounting, personal finance, etc., but my first year I was thrown into teaching multimedia, web design, and computer applications. I had to quickly learn many software programs that I had never used before. When teaching these technology classes, I saw real potential in showing students how to turn what they learned in my classes into assets they could use in any class. I started attending educational technology conferences, got on the band-wagon when my school went 1:1 with devices, joined the professional development committee where technology was our main focus, and really dove into the SAMR model for all of my classes. When I found out that not only could I work towards one of my biggest goals of advancing my degree, but in a subject that was a perfect fit for me, I was elated.

I consider my worldview to most closely follow the Pragmatic paradigm. The characteristics of pragmatism align with the research that I am interested in because it gives the opportunity for the researcher to decide what methodological approach is best for their research question (Kaushnik & Walsh, 2019; Morgan, 2014b). It gives this flexibility in how to answer the research questions because it is contextual (Fishman, 1991). My research interests lie within student-centered learning and project-based learning, but I also want to know how the students feel about instructional approaches and their own learning. These all can be related back to my main focus, the implementation, effectiveness and student perceptions of the flipped classroom model.

According to Creswell and Creswell (2018), these larger philosophical ideas will help determine which type of methods to use within a research study. Pragmatism is

concerned with finding solutions and applications that work to solve a problem using any form of methodology that is necessary. Mixed methods are at the core of the Pragmatic paradigm. Early pragmatists did not believe that social science inquiry came solely from one scientific method (Grant, 2016b). For my own research, I felt that neither quantitative nor qualitative approaches alone could gather the information that I would want to know about the flipped classroom. Pragmatists believe we should be able to study what interests us and has value to us as long as we are working for the greater good of the people (Mertens, 2009). This correlates back to the beliefs of pragmatists being contextual. These views are that they are highly dependent on the views of the researcher. I believe educational technology to be something that interests me and I have the greater good of the people in mind when implementing it within my classroom.

My positionality within my research was that of an insider in collaboration with other insiders. Herr and Anderson (2005) describe this as someone, such as a teacher, who collaborates with other teachers and administrators, as well as with the students or participants. I was part of the classroom in which I conducted my research study and I value the insight I gained from the post-survey and interviews with my participants, which had a large part in the analysis of my research. I regularly collaborated with other teachers, such as in Professional Learning Communities, on best practices and new ways of introducing material. They helped give insight on ways to develop and implement a flipped classroom, although they were not participants within the study. They were also be helpful in reviewing my study to check for accuracy in data analysis and interpretation.

While I consider myself an insider collaborating with other insiders, I also believe there are ways in which the researcher can be seen as both an insider and an outsider depending on the context. If using a pluralistic view, and setting aside the idea that the positionality can only be a continuum or dichotomy, we could describe the researcher as an insider in some terms, but an outsider in other terms (Holmes, 2020). For example, I was an insider to white females, but an outsider to males of any minority. I was an insider to Missouri born citizens, but an outsider to those from other states. I was an insider to Christians, but an outsider to participants of other religious preferences. I was an insider to students who have taken a class with me before, but an outsider to new students. This was my third year at this school and my positionality was slowly moving towards that of an insider overall. In order to negotiate my positionality with my participants I was sure to be detailed in my description of the research study, and how their views, opinions, and attitudes would shape the qualitative aspect of my research. I explained the importance they hold in directing future teaching and learning practices and that my position in regards to them was to not only guide them to new learning as their teacher, but to discover more about them as a researcher.

Definition of Terms

Flipped Learning

In the flipped classroom model, an instructional video lesson is provided to students to watch before class, then in-class time is used for asking questions and completing practice work while the teacher moderates and assists when needed (Bergmann & Sams, 2012). In a flipped learning approach, information-transmission using face-to-face lecture is replaced by active learning using video recorded lessons (Abeysekera & Dawson, 2015). In this research, flipped learning was defined as an instructional model where students have access to a video lesson rather than a traditional face-to-face lecture to promote the active learning of multimedia software programs.

Modified Flipped Classroom

One of the many versions of a modified classroom is called the in-class flip, where the students view the video lesson in the classroom and then move on to practice new content. In this approach, students progress at their own pace so that those who are struggling can take more time to view the lesson and those who are advancing more quickly can move on to the practice (Braddock, 2020). González (2014) originated the term "in-class flip", in which she describes it as using the basis of the flipped classroom approach, but instead of viewing the videos at home, the video becomes a station in the classroom where students can watch the lesson then rotate to work on independent work or group work. González recognized that there were issues with the traditional flipped model, where we cannot guarantee that the student has access to a computer or the internet at home, we do not know if the home environment is chaotic and not conducive to watching a video lesson, and we may have students who do not complete the

homework (2014). In this research, a modified flipped classroom was defined as an instructional approach where students progress at their own pace by watching video lessons of multimedia software in class and then moving onto independent work in the form of projects.

Multimedia

Vaisla (2021) describes multimedia as "utilizing a mix of different forms of content such as animations, texts, images, audios, interactive contents, and videos" (p.2). For this study, multimedia was defined in the same manner, as all of these components are found within the multimedia courses that the researcher teaches.

Multimedia Computer Software

Multimedia computer software is the use of different types of media, such as audio, text, graphics, video, and animation, all in one program (Liu, 1996). Another view on multimedia is that "interactive multimedia learning is a process, rather than a technology, that places new learning into the hands of users" (Stemler, 1997, p. 229). For the purpose of this study, multimedia software was defined as an interactive computer program that uses a variety of media. The software program that is taught in the Multimedia II course at Jefferson High School is Adobe Premiere Pro, a video editing program.

Active Learning

In this study, active learning was defined as allowing students to construct their knowledge and understanding while promoting self-regulation, autonomy, and the exploration and reflection of content material (Alexander, 2018) by having students engaged in instruction rather than passively listening to lecture (Xiu et al., 2018).

Perceptions

Gathering student reactions and feedback to gauge their beliefs and attitudes (Roach, 2014) towards using a modified flipped classroom approach was how this study defined perceptions.

Attitudes

Merriam-Webster (2022a) dictionary defines *attitude* as "a feeling or emotion toward a factor or state". In this study, attitudes towards the effectiveness and usefulness of the video lessons were measured.

Beliefs

"Something that is accepted, considered to be true, or held as an opinion" is how Merriam-Webster (2022b) defines *belief.* In this study, the perception of the learning experience, including the beliefs of self-efficacy, interactions with others, and overall satisfaction with the modified flipped classroom were measured.

CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose of this action research study was to implement and evaluate the impact of a modified flipped classroom approach on students' ability to use Adobe Premiere Pro in a Multimedia course at Jefferson High School. The research questions for the review of related literature focused on the following: (1) How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School? (2) What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School?

The literature review was guided by the research questions and the following variables were used to direct the search: (1) multimedia education, (2) the flipped classroom, (3) student perceptions, and (4) learning theories. A combination of flipped classroom, flipped learning, flipped classroom approach, flipped, flip, and in-class flip were used as a keyword base. Student perceptions, positive perceptions, negative perceptions, advantages, and disadvantages were also added in combination with the previously mentioned keywords. The keywords high school and secondary were added to these combinations to find articles specific to this research study's age range. These searches produced a broad range of resources. Student achievement and mastery were

added to the search to get a more narrow and specific result. In addition, learning computer programs, multimedia, multimedia education, video lecture types, technology integration, instructional videos, computer literacy, computer information literacy, digital literacy, Premiere Pro, and video editing were searched in reference to the multimedia education variable. These keywords were also searched with the flipped classroom set of keywords for additional resources. Lastly, the keywords learning theories, constructivism, and constructivist were searched alone and with the flipped classroom combinations.

The electronic databases that were accessed include: *EBSCO, ProQuest, ScienceDirect, Academic Search Complete, Education Source, JSTOR, Academic Search Premier,* and *DOAJ*. Google Scholar was also used to cross-reference sources.

References were mined from previously reviewed journal articles using the bibliography or reference sections. Resources were also provided by peers in discussion boards as well as suggestions by the instructors in the doctoral program at the University of South Carolina. The institute's online library was helpful in completing searches for specific references that were mined or from suggestions given. The online library was also utilized to narrow down searches by choosing only peer reviewed articles within the last five years after a broader search was conducted.

The review of literature was organized into two main topics. First, what is the importance of multimedia education. And second, what is the flipped classroom

Multimedia Education

Multimedia education courses are increasing in K-12 and higher education institutions. This first section showed an investigation into the importance of multimedia education and why schools have added it to their available coursework. Then, I looked more closely at video editing and one of the leading video editing software programs.

The Importance of Multimedia Education

The International Computer and Information Literacy Study defined *computer information literacy* (CIL) as "an individual's ability to use computers to investigate, create, and communicate in order to participate effectively at home, at school, in the workplace, and in society" (Fraillon et al. 2013, p. 17). There are many terms that can be synonymous with computer information literacy (CIL). The terms CIL, computer literacy, digital competence, digital literacy, and information and communication technology ICT literacy can all be used to describe the ability to use applications on computer and other digital devices (Fraillon et al., 2018). In order to foster students' CIL, school districts and universities have the opportunity to adopt courses such as multimedia education, video production, media production, digital design, computer science, programming, and computer applications.

In December 2015, the Every Student Succeeds Act (ESSA) was signed into law, reauthorizing the Elementary and Secondary Education Act of 1965 (ESEA), which was a commitment to equity and opportunity for all students (U.S. Department of Education, 2016). Title IV of the ESEA specifies activities to support the act, including the use of technology to support academic achievement and digital literacy (Boyle & Wilkinson-Flicker, 2020; U.S. Department of Education, 2016). The K-12 school districts'

willingness to provide courses that foster CIL and digital literacy, as mentioned above, reaffirms that they are on board to follow the Title IV of the ESEA.

The 2018 International Association for Evaluation of Educational Achievement (IEA) International Computer and Information Literacy Study (Fraillon et all, 2018) was conducted in 14 countries to see the extent to which students could use ICT productively. All 14 participating countries reported that they offered CIL to students in at least the lower secondary levels (Fraillon et al, 2018). They all also supported the use of ICT in education at the national, state, or local levels, or a combination of all three (Fraillon et al., 2018). In a survey offered to the teachers about the availability of software resources, 85% reported access to video and photo editing software (Fraillon et al., 2018). Lastly, when the teachers were asked how much emphasis (strong emphasis, some emphasis, little emphasis, or no emphasis) they gave to the use of computer software to construct digital work products, 76% indicated that they used some or strong emphasis (Fraillon et al., 2018). Again, we see the support on an international level to foster students' CIL, and even more specifically in courses that teach video editing.

The U.S. Bureau of Labor Statistics (2022a) reported an expected growth of 13% for computer and information technology jobs, which will add over 667,000 jobs to the workforce in the next 10 years. More specifically, they reported 63,300 film and video editing jobs in 2020. The video editing industry is predicted to increase employment 29% from 2020 to 2030 (U.S. Bureau of Labor Statistics, 2022b). This speaks to the employability of students that receive computer and information technology training and education, and more specifically video editing training and education. The importance of

multimedia education is once again affirmed by the clear need for these types of jobs in the workforce not only currently, but in the long term.

Adobe Premiere Pro

Adobe Premiere Pro is a video editing software program that can be used to produce professional level videos. Adobe (2022a) markets their tools to schools and universities stating they "empower students to communicate and think creatively so they can graduate with the digital skills needed for future career opportunities" (p.1). Adobe (2020a) also makes claims that Premiere Pro was used to produce more Sundance Film Festival videos than any other software, along with the production in many other major Hollywood films. With a leading space in the industry, more and more K-12 schools and higher education institutes are utilizing it as a video editing tool within their media production courses. Video editing software is now necessary to media making and the ability to use video editing software is a job-ready skill (Swerzenski, 2021).

One way for a person to showcase their proficiency with Adobe Premiere Pro, is to pass the certification test to become an Adobe Certified Professional. The Adobe company claims that certification validates one's skills to show credibility and give a competitive edge (Adobe Certified Professional, 2021a).

Adobe offers instructional and supplemental materials with their programs (Peasrson, 2022a). Prior to 2017, Premiere Pro was accompanied by the *Classroom in a Book* series. This type of instructional offering was used to augment teacher-led instruction (Swerzenski, 2021). The series offered self-paced lessons, along with downloadable files to create the lessons and projects (Pearson, 2022b). Adobe has since adopted the *Learn More* how-to guides that are embedded within the software (Adobe,

2022b) and start upon launching the program. These are meant to be more fully automated training resources, which could be used as a stand-alone training without additional teacher led instruction (Swerzenski, 2021). Swerzenksi (2021) argues that while the *Learn More* series can be helpful in technical training, it lacks meaning-making that should foster critical thinking and reflection. With the *Learn More* tutorials, the students follow the step-by-step process that is built in the program, where video files are provided in the program (Adobe, 2022b). The students do not use their own files nor construct the videos how they would like to. This lack of support for critical thinking by only using the *Learn More* tutorials acknowledges the need to keep teacher-led instruction while learning Adobe Premiere Pro.

The Flipped Classroom

This second major section investigated the (a) description of the flipped classroom, (b) theoretical underpinnings, (c) components of an effective flipped classroom, (d) advantages of the flipped classroom, (e) disadvantages of the flipped classroom, and (f) the in-class flip.

Description of the Flipped Classroom

The *flipped classroom* is a term that has been adopted in education within the last decade. Bergman and Sams (2012) coined this phrase and gave a detailed description of the method and how to implement it in their book, *Flip Your Classroom: Reach Every Student in Every Class Everyday.* From then, it became a major topic in the educational realm, eliciting many teachers to make the change in their instructional approach.

The flipped classroom method is a style of teaching in which the tasks that are done in class, such as lectures and notetaking, are done at home and class time is left for

activities such as homework or other engaging tasks (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Schmidt & Ralph, 2016). In this model, the lectures are replaced with video lessons (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Serçemeli et al., 2018) or instructional activities such as slideshows and readings (Schmidt & Ralph, 2016) that the students access outside of the classroom. Bergmann and Sams (2012) describe the basic concept of the flipped classroom as "that which is traditionally done in class is now done at home, and that which is traditionally done as homework is now completed in class" (p.13). This concept can allow the teacher to choose which activities to do in class and which to save for home. While researching the flipped classroom, it became apparent that there are multiple terms associated with the approach. Kerr (2020) asserts that flipped learning and flipped classroom are used interchangeably. This was important to note as I conducted further research.

Theoretical Underpinnings

In this section, I examined the theoretical underpinnings of the flipped classroom. First, I described the developers of the constructivism theory, its definition, and the learner and instructor roles within constructivism. Finally, I connected this theory to the flipped classroom.

Constructivism

Jean Piaget and Lev Vygotsky (Harasim, 2012), John Dewey, Jerome Bruner, and Ulrick Neisser all contributed to the basis of the constructivist theory during a period of educational reform (Huitt & Hummel, 2003). Constructivism looks at how people understand the world around them based on their own experiences (Clark, 2018; Ertmer & Newby, 1993; Harasim, 2012). The learner uses their experiences to interpret and

understand concepts, then learns by doing (Harasim, 2012), not by a transfer of knowledge (Ertmer & Newby, 1993; Witkowska-Tomaszewska, 2019). The instructor presents an activity or scenario in which the learner must make meaning (Harasim, 2012). The instructor must also provide a responsive environment in which individual learning styles and motivations are considered (Cooper, 1993). The learner then has control of the information based on their own interpretations of it and their ability to actively use it (Cooper, 1993; Ertmer & Newby, 1993; Harasim, 2012). A strength of constructivism is that it aids in problem solving and critical thinking (Mergel, 1998).

Connection Between Constructivism and the Flipped Classroom

The flipped classroom model lends itself to constructivism because it is student-centered and the students have control over their learning (Clark, 2018; Johnson & Renner, 2012; Xu & Shi, 2018). In a flipped approach, the instructor acts as a supporter for the students to construct knowledge, closely aligning to constructivism where prior knowledge is used with new experiences, and the students are not just provided the knowledge (Clark, 2018; Jantakoon & Piriyasurawong, 2018; Xu & Shi, 2018). Cooperative learning is also closely related in the constructivist model and the flipped classroom approach. Instructors promote a learning environment with active participation with peers (Dong et al., 2021; Jantakoon & Piriyasurawong, 2018; Xu & Shi, 2018). Students play the role of active participants in both constructivism and the flipped classroom. They are presented with real-life situations and are tasked with managing their own learning (Dong et al., 2021; Xu & Shi, 2018).

Components of an Effective Flipped Classroom

While researching how to implement an effective flipped classroom, the following seven components were discovered: the length of the videos, the types of videos, the use of multimedia design principles, engagement, checking pre-class work for access and understanding, the student's role in the class, and the teacher's role in the class. Each of these is detailed in the next sections.

Length of Videos

An important thing to consider when creating videos for the flipped classroom is the length of the videos. Short videos work best (Akçayıra & Akçayıra, 2018; Schmidt & Ralph, 2016) to keep the audience's attention and not overwhelm them with too much information at once. Shorter videos also lessen in-video dropout rates, or when students quit watching a video before it has ended (Kim et al., 2014). Lo (2018) recommends keeping the videos around six minutes. For more complex concepts or skills, the tutorials can be split into multiple shorter videos by individual tasks. Moreno et al. (2020) recommends that videos longer than six minutes be broken up into smaller sections.

Types of Videos

Who produces the videos can also have an effect on the audience. Bergmann and Sams (2015), the pioneers of the flipped classroom, suggest that the teacher or a group of teachers within a school create the videos in a flipped classroom. They claim that this is an element of a successful flipped classroom because of the relationship that the teacher builds with their students within the class (Bergmann & Sams, 2015). The students also have better buy-in because they believe the videos were custom made for them (Bergman

& Sams, 2015). However, Schmidt and Ralph (2016) remind us that videos from multiple sources, not only the teacher, are refreshing. As mentioned above, the at-home work of a flipped classroom can include more than just videos, including readings and slideshows. However, Lee & Choi (2018) argue that video lectures are more effective than readings. In another study, students actually preferred video lectures over readings (Lopes & Soares, 2018).

Multimedia Design Principles

The construction and design of the videos can have an effect on learning. Lee and Choi (2018), Lo (2018), and Lo et al. (2017) suggest the use of Mayer's cognitive theory of multimedia learning to produce the videos within a flipped classroom. Mayer (2017) lists and describes these 12 research-based principles for computer-based multimedia instruction. Seven of these principles were implemented in the construction and use of the video lessons in this study:

1. Signaling Principle- People learn better when essential material is highlighted.
2. Redundancy Principle- People learn better from graphics and narration than from graphics, narration, and on-screen text.
3. Temporal Contiguity Principle- People learn better when corresponding narration and graphics are presented simultaneously.
4. Segmenting Principle- People learn better when a multimedia lesson is presented in small, user-paced segments.
5. Modality Principle- People learn better from a multimedia lesson when the words are presented in spoken form.

6. Personalization Principle- People learn better when the words in a multimedia lesson are presented in conversational style rather than formal style.
7. Voice Principle- People learn better from a human voice than a machine-like voice. (pp. 406-414)

In a research study by Nagmoti (2017), medical students were given lectures with half using traditional PowerPoint presentations and half with slides using Mayer's multimedia design principles. The participants' achievement was measured against a pre-test and their perceptions of the two types of presentations were recorded (Nagmoti, 2017). There was a significant difference in the posttest scores of the participants after traditional presentation slides compared to those who viewed the slides using Mayer's multimedia principles, with those that viewed the latter having better scores (Nagmoti, 2017). Nagmoti (2017) also found that the participants felt the slides using Mayer's multimedia design principles were more interesting, engaging, and useful, as well as the overall quality was high. Following these principles may help to ensure that the student does not have difficulties learning the content because of poor design.

Engagement

It is important that the video lectures are engaging to students (Akçayıra & Akçayıra, 2018; Isaias, 2018). Just like a student would want engagement within their classroom during lectures, the same is true for lectures that are recorded.

Once the students are in class, engagement is once again a major component of an effective classroom. Reschly and Christenson (2022) describe engagement as "…the student's active participation in academic and co-curricular or school-related activities and commitment to educational goals and learning" (p.4). Active learning should be

taking place within the classroom that includes real-life scenarios for the students to work through (Isaias, 2018). Because the in-class time is no longer being used solely for lecture, the students should be participating in learning that fosters critical thinking. Active learning allows students to construct their knowledge and understanding (Alexander, 2018) by having students engaged in instruction rather than passively listening to lecture (Xiu et al., 2018).

Checking Pre-class Work for Access and Understanding

It is recommended that students should complete some kind of assessment after watching the video to ensure they are prepared for class and to check for understanding (Isaias, 2018; Lo 2018; Moreno et al, 2020). One of the disadvantages of the flipped classroom, that is mentioned in a later section of this literature review, is that students do not always complete the pre-class work. This step can help to alleviate that disadvantage because it holds them accountable for completing the work. Students also like being able to see results of their quizzes after watching the videos (Lopes & Soares, 2018). The teacher can use these assessments to see how many and which students are completing the pre-class work (Lo, 2018). This can help to ensure that students are doing the work and to see what topics may need to be explained in more depth.

Student's Role in Class

Students have a major role in the flipped classroom. They should be participating in active learning activities that deal with real life situations (Lo, 2018). These can help to foster critical thinking. Students should also be cooperatively learning with their peers during in-class activities (Kerr, 2020; Lo, 2018; Vereş & Muntean, 2021). Cooperative learning can be an important part of the learning process within the flipped classroom.

Hsiung (2012) found that students who participated in cooperative learning had higher academic achievement versus those that only participated in individual learning. Chen et al. (2015) conducted a study in which "[all] groups identified cooperative learning as an effective instructional strategy in flipped classrooms" (p.621).

Teacher's Role in Class

While the flipped classroom promotes a student-centered approach, the teacher has their role as well. First, they should provide a short review of content and answer any questions the students may have at the beginning of class (Isaias, 2018; Lo, 2018). They are also available to give immediate feedback to individuals and groups within the class (Isaias, 2018; Kerr, 2020; Lo 2018; Vereş & Muntean, 2021) as they are working on projects and other activities. The teacher's main role is to act as a guide, not as a source of information (Bergmann & Sams, 2012, Vereş & Muntean, 2021). They are there to assist the students when there are questions about the content, and to guide them through the active learning process.

Advantages of the Flipped Classroom

In this next section, I investigated the advantages of the flipped classroom approach from the student and teacher point of view. This part of the review focuses on (a) accessibility and flexibility, (b) student-centered active learning, (c) self-pacing and control, (d) student achievement, (e) self-efficacy, (f) help with homework in class, and (g) overall student satisfaction.

Accessibility and Flexibility

Since the students can access the videos online and before class, they have the flexibility to watch them on their own time (Akçayıra & Akçayıra, 2018; Bergmann &

Sams, 2012; Kerr, 2020; Serçemeli et al., 2018; Tugun et al., 2017). This could be during a study hall, before an extracurricular, on the bus ride to or from school, at home after dinner, or really any time that works best for the student. They are no longer limited to in-class only lectures.

Students reported enjoying being able to watch the videos in less noisy and crowded environments (Tugun et al., 2017). Some students need a quiet space to dive into the information. Being able to watch the videos on their own can also be helpful to students with hearing or sight issues because they do not have to be distracted by noises of other students or if they do not sit near the front of the classroom.

If students have to miss class, they also have the opportunity to see the material on their own (Bergmann & Sams, 2012; Schmidt & Ralph, 2016; Vereș & Muntean, 2021) so that they do not fall behind. Bergmann and Sams (2012) decided to try the flipped classroom because they had a lot of students who were missing school and then those students would struggle to stay caught up with their work. They started recording lessons so that they would not have to reteach each student as they returned to school (Bergmann & Sams, 2012). In return, the students liked that they had the flexibility to watch the videos on their own time (Bergmann & Sams, 2012).

In a flipped classroom, students also learn time management skills because of the flexibility of the course setup (Bergmann & Sams, 2012, Lopes & Soares, 2018). This skill can be transferred into other areas of their life as well.

Student-centered Active Learning

Multiple researchers have found that a flipped classroom allows for students to have more responsibility and ownership of their learning (Ishak, 2020; Kerr, 2020; Lopes

& Soares, 2018). Within this model, the students must construct and negotiate meaning on their own or with peers (Leo & Puzio, 2016; Vereş & Muntean, 2021). As mentioned above, this is the student-centered active learning that the flipped classroom has been praised for.

In this approach, the four types of engagement (behavioral, emotional, cognitive, and agentic) also contributed to an increase in active learning (Jamaludin, & Osman, 2014). Behavioral engagement refers to the students' participation in academic, social, and extracurricular activities (Reschly & Christenson, 2022). "Students with high behavioral engagement do their best in their classwork and homework, turn in assignments on time, show positive school and classroom behavior, and maintain good attendance." (Reschly & Christenson, 2022, p.78). Emotional engagement focuses on enthusiasm, excitement, and interest when participating in learning activities (Reschly & Christenson, 2022). Cognitive engagement is concerned with the students' willingness and effort to learn (Fredericks et al., 2004). When a student has high cognitive engagement and the teacher poses questions, the students make an effort to make connections to their prior experiences (Jamaludin, & Osman, 2014). Lastly, agentic engagement is when students try to support their own self-learning which helps them to have active learning experiences and high achievement (Jamaludin, & Osman, 2014).

Ishak et al. (2020) conducted a mixed methods study that aimed to understand what motivated students to watch online videos before class in a flipped course. They used a survey and focus group interviews to come up with three themes: mastery of content outside of class, interaction with peers and the instructor, and learning autonomy (Ishak et al., 2020). The students reported that they came to class prepared for active

learning, such as with discussions (Ishak et al., 2020). The students viewed the lectures on their own time and therefore had more time for higher order thinking or critical thinking (Ishak et al., 2020). Kerr (2020) also reported that students had more time for critical thinking in the flipped classroom. In addition, this approach fosters communication with others. Students in the Ishak et al. (2020) study felt they had better interaction with other students. Another study (Cukurbasi & Kiyici, 2018) indicated that students had better interactions with the instructor as well because of the flipped approach.

Self-pacing and Control

Students within a flipped classroom often praise the ability to work at their own pace. The flipped classroom provides a free learning environment because students can repeat the content if and whenever they want. Students liked that they could pause, rewind, and review material if they needed to, and multiple times if needed (Cukurbasi & Kiyici, 2018; Fulton, 2012; Lo & Hew, 2017). They did not have to worry about writing down notes quickly while the lecture was happening because they could pause the videos to take notes (Bergmann & Sams, 2012), and rewatch when they needed to see and hear the content again (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018). Students liked that they could take notes at their own pace (Lo & Hew, 2017). Since they are watching the video lectures on their own and have the flexibility to control the videos and the pace of their notetaking this can give them time to process the information.

Additionally, students can play the videos at a faster pace and could then get through the material more quickly if needed (Sigurðardóttir & Heijstra, 2020). Many

video software programs and applications have the capability of increasing the speed to one and half times or twice the speed.

The flipped model is conducive to having students that learn on varying timelines (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012) or have varying abilities (Kerr, 2020). Struggling students can take more time while advancing students can move on to practice (Braddock, 2020).

Students also felt the flipped classroom approach helped them come to class prepared, and therefore saved time (Cukurbasi & Kiyici, 2018; Fulton, 2012). They felt they could control their own time spent on studying (Serçemeli et al., 2018). Students also reported they could watch or listen to the videos whenever it suited them best (Ishak, 2020; Sigurðardóttir & Heijstra, 2020).

Student Achievement

When compared to the traditional classroom, the flipped classroom had a significantly more positive effect on student achievement (Boateng et al., 2022; Cheng et al., 2018; Fulton, 2012; Guy & Marquis, 2016; Lopes & Soares, 2018; Say & Yıldırım, 2020). Additonally, in multiple studies (Akçayıra & Akçayıra, 2018; Kashada et al., 2017; Sergis et al., 2018), a positive effect on student achievement occurred when implementing the flipped classroom. The students also felt that the flipped method increased their intrinsic motivation (Ishak, 2020; Sergis et al., 2018).

A study conducted by Tugun et al. (2017) aimed to determine the influence that the flipped classroom had on digital game development for ninth grade students using an experimental pre-test posttest design. Tugun et al. (2017) reported that the average student assessment scores for digital game development were significantly higher with

the flipped classroom approach at 86.96 compared to the control group with 67.29, who used the traditional classroom approach. The students in the experimental group also reported a more positive opinion of the flipped classroom model, with most of them indicated they had more confidence in the course content (Tugun e al., 2017). Additional confirmation of increased student achievement was found in a meta-analysis of 95 studies conducted between 2013 and 2019, which indicated that the flipped classroom had a moderate-sized effect on student learning (Zheng et al., 2020).

Self-efficacy

It is important that students feel that they can do the work in order for them to be successful. Boateng et al. (2022) conducted a mixed method, quasi-experimental study, with a control group and experimental group in which a flipped classroom was implemented. Participants completed an eight-item self-efficacy scale (Boateng, 2022). Compared to a traditional classroom, Boateng et al. (2022) found that the flipped classroom motivated students' self-efficacy and they reported having confidence in their ability to perform the tasks independently. As mentioned previously, in the Tugun et al. (2017) study, students also reported having more confidence in the course while using the flipped classroom as compared to a traditional classroom. Two other studies (Ishak et al., 2020; Sergis et al., 2018) included a majority of students who felt competent in the tasks and activities and confident to participate in class discussions because of the flipped classroom approach. It is apparent that self-efficacy is present in the flipped classroom.

Help With Homework in Class

Having time to work on homework and to get help is another advantage to the flipped classroom. Students are able to save in-class time for more productivity with the

activities (Findlay-Thompson & Mombourquette, 2014; Serçemeli et al., 2018). The flipped environment also allows more time for interaction between the student and the instructor, and the ability to get feedback in a timely manner (Fulton, 2012; Guy & Marquis, 2016; Lo & Hew, 2017; Vereş & Muntean, 2021).

Teachers agree that this model allows for more activity time and engagement in class (Hultén & Larsson, 2018). Hultén and Larsson (2018) conducted a qualitative study on seven teachers' views of the flipped classroom. One of the major themes that was found from the interviews with the teachers was student activity in the flipped classroom (Hultén & Larsson, 2018). More specifically, the teachers felt that the students had better interaction with the students in a flipped classroom and the students were prepared so they had higher quality questions and discussions with the teachers. Aidoo et al. (2022) found similar results with their student participants reporting they had an increase of interaction, but with their peers.

In contrast, students in another study had an opposing perception of working with peers. Students did not believe learning from their peers was a proper learning method (Sigurðardóttir & Heijstra, 2020).

Overall Student Satisfaction

Students are generally satisfied with the flipped learning approach (Aidoo et al., 2022; Fulton, 2012; Lo & Hew, 2017). A majority preferred the flipped classroom to a traditional classroom and had a positive overall experience (Guy & Marquis, 2016; Say & Yıldırım, 2020; Sergis et al., 2018). Cukurbasi and Kiyici (2018) claim that the students started with a negative perception of the flipped classroom approach until it was implemented, and then their overall satisfaction with the method was positive.

However, there are other studies that report student dissatisfaction with the flipped classroom. Some students enjoy the traditional method of lecture in the classroom over the flipped approach (Dong et al., 2021; Findlay-Thompson & Mombourquette, 2014; Lo & Hew, 2017). Another study found that with the flipped classroom, there was not a significant effect on student satisfaction, indicating that they were equally as satisfied with flipped classroom as traditional classrooms (van Alten et al., 2019). The students' experiences can also affect their perceptions. When students are novices to non-traditional models, they can experience negative perceptions because of lack of experience with the setup (Thai et al., 2020). This may be counteracted by giving a detailed description of how the flipped classroom works and the roles of the students and teacher prior to implementing the method.

Disadvantages of the Flipped Classroom

In contrast to support for a flipped classroom, there are disadvantages to consider as well. The following three major disadvantages were discovered during the review: technology issues, teacher preparation, and pre-class work.

Sigurðardóttir and Heijstra (2020) conducted a mixed methods study with the aim of improving engagement in a flipped classroom. Their participants were part of two focus groups comprised of only males because they found in past studies that males were less enthusiastic about the flipped classroom when compared to females (Sigurðardóttir & Heijstra, 2020). In this study, two of these disadvantages were present. Some of the students did not have access to the videos outside of the classroom, and when the students have technical difficulties viewing the videos, it has a negative influence on their attitudes towards flipped learning (Sigurðardóttir & Heijstra, 2020). In addition, many of

the students did not complete the pre-class work, they did not want to take responsibility for their own learning, and in return were not prepared, could not ask questions and could not complete the in-class work (Sigurðardóttir & Heijstra, 2020). The study focused on surface and deep level learning approaches and found that those that did not do the pre-class work could only reach surface level learning (Sigurðardóttir & Heijstra, 2020).

Technology issues

The flipped classroom can pose the problem of students not being able to access the videos outside of the classroom (Aidoo et al, 2022; Say & Yıldırım, 2020; Sigurðardóttir & Heijstra, 2020) if they do not have proper internet access (Kashada et al., 2017; Lo & Hew, 2017; Schmidt & Ralph, 2016; Serçemeli et al., 2018; Vereş & Muntean, 2021). Not all programs allow the teacher to see if the student has viewed the pre-class videos (Lo & Hew, 2017). This can cause further issues of accountability with pre-class work, as discussed below.

Teacher Preparation

Teachers reported a large amount of time required to set up the flipped classroom (Kashada et al., 2017; Lopes & Soares, 2018). They often cannot find pre-made videos that match their content perfectly so they have to make their own (Lo & Hew, 2017). There is a lot of time involved in creating high-quality videos (Lo & Hew, 2017; Vereş & Muntean, 2021).

Pre-class Work

One of the most difficult tasks was making sure that the students were in sync when they reached the classroom so that a productive class could be held. This involved the pre-class work that must be completed (Akçayıra & Akçayıra, 2018; He et al., 2016;

Low & Hew, 2018; Lopes & Soares, 2018). Some students did not want to take responsibility for their own learning because it required more critical thinking (Sigurðardóttir & Heijstra, 2020). Students reported frustration with the autonomy in the flipped classroom model because they were used to the face-to-face model (Thai et al., 2020). Students may be unwilling to watch the videos before class (Vereş & Muntean, 2021), and therefore are not prepared (He et al., 2016; Sigurðardóttir & Heijstra, 2020). They may be unable to ask questions and do the in-class work (Lopes & Soares, 2018; Serçemeli et al., 2018). Some participants did not like they could not answer questions while watching the lectures, they had to wait until they saw the instructor during class to get clarification (Findlay-Thompson & Mombourquette, 2014; Sigurðardóttir & Heijstra, 2020; Thai et al., 2020). This mindset could hinder their willingness to complete the pre-class work.

In-Class Flip

Since the adoption of the flipped classroom as an effective teaching method, there have been modifications made to the approach to help address some of the disadvantages. One of these modifications is called the *in-class flip*.

The in-class flip consists of providing video lessons to students that they can watch within the classroom, instead of as a homework assignment before class (Braddock, 2020; Gonzalez, 2014). After the completion of the video lesson, the student can then move on to an in-class activity, such as group work or independent practice (Braddock, 2020; Gonzalez, 2014).

The in-class flip allows teachers to use a station or rotation type method (Braddock, 2020; Gonzalez, 2014; Ramirez & Rodriguez, 2018). The in-class flip was

originally coined by Jennifer Gonzalez in 2014 (Braddock, 2020; Gonzalez, 2014; Güven Demir & Öksüz, 2022; Ramirez & Rodriguez, 2018). Gonzalez (2014) notes that the traditional flipped classroom has some drawbacks such as students not having adequate technology at home and that teachers cannot be sure that the students are doing the work at home. She wanted to apply the flipped model without the problems associated with it, which is how the concept for the in-class flip was born (Gonzalez, 2014). Since then, the method has been used in only a few studies. In the Braddock (2020) study, the students watched a short video then went on to one of three stations then rotated through all three. Braddock (2020) found that all students had access to technology, had the opportunity to learn, were able to have oversight by the instructor, had better pacing than a traditional classroom, and learning was not disrupted when a student came in late or was absent. In another study by Ramirez and Rodriquez (2018), the in-class flip is used at a teaching conference. Three separate stations were set up. The first station was to watch a nine-minute video, the second was to answer some definition questions on a worksheet, and the third was to decompress and discuss the learning with peers. Ramirez and Rodriquez (2018) found that participants did not have to worry about adequate technology or Wi-Fi because they were able to access the materials in the classroom, it allows the teachers to monitor the students while they are learning to offer supports when needed across varying ability levels of students, and a variety of student-centered activities can be used as part of the flow in station work.

The in-class flip was developed to alleviate some of the traditional flipped classroom issues such as the students not coming to class prepared or not having adequate technology outside of the classroom (Braddock, 2020; Gonzalez, 2014; Güven Demir &

Öksüz, 2022; Ramirez & Rodriguez, 2018). Since the students watch the videos in class, and not at home, they are not responsible for completing pre-class work. In addition, the students do not have to worry about adequate technology or internet access at home because these are provided within the classroom. In the traditional flipped classroom, the students would not have the teacher available to answer questions while learning through the video lessons at home. This allows the in-class flip to have another advantage over the original flipped method because the in-class flip allows teachers to monitor students while they are viewing the video lectures (Gonzalez, 2014; Güven Demir & Öksüz, 2022). The teachers can answer questions as the students have them, rather than them having to wait to get back into the classroom (Gonzalez, 2104). However, one study has found that there were not significant differences in the traditional and in-class models. Güven Demir and Öksüz (2022) compared a traditional classroom model, a flipped classroom model, and in-class flip model. Both flipped models saw significant results on student achievement and opinions, while no significant differences in the flipped models were found (Güven Demir & Öksüz, 2022).

These solutions that the in-class flip provided to the traditional flipped model disadvantages were why I chose to implement this approach in this study.

Summary

This literature review described why multimedia is important in today's educational realm, the various components, advantages, and disadvantages of the flipped classroom, and the connection the flipped classroom has to constructivism. The first section established the need for multimedia education and how it is important in the development and continuation of future jobs. The video editing program, Adobe Premiere

Pro, was also described and the importance of the software in the media production industry was supported.

In the next major section, the flipped classroom was defined and described along with the theoretical underpinnings and components of an effective flipped classroom. A connection was established between the elements of constructivism and the workings of a flipped classroom. These included how learning should be student-centered and the student's role in their own learning, along with the role of the teacher. Then the effective components were discussed, including: the length of the videos, the types of videos, the use of multimedia design principles, engagement, checking pre-class work for access and understanding, the student's role in the class, and the teacher's role in the class. Next, advantages of the flipped approach were detailed and focused on (a) accessibility and flexibility, (b) student-centered active learning, (c) self-pacing and control, (d) student achievement, (e) self-efficacy, (f) help with homework in class, and (g) overall student satisfaction. I also contrast these with the discussion of the disadvantages to the flipped classroom: technology issues, teacher preparation, and pre-class work. Finally, the modification to the flipped classroom, the in-class flip, was introduced and described with support presented for how this approach could confront the disadvantages of the original flipped classroom.

CHAPTER 3

METHODS

The purpose of this action research study was to implement and evaluate the impact of a modified flipped classroom approach on students' ability to use Adobe Premiere Pro in a Multimedia course at Jefferson High School.

The following research questions were addressed in this study:

1. How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School?
2. What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School?

Research Design

Action research is an inquiry conducted by an individual that has a vested interest in a particular setting or population with the intent of improving the quality or effectiveness within that situation (Efron, 2019; Mertler, 2020). It is often done by teachers with the purpose of bettering their own practices. McAteer (2013) and Mertler (2020) believe that this type of study helps the researchers develop a call to action. The next paragraphs explore the benefits and characteristics of action research, along with paradigm and research methods that best fit for this particular action research study.

Action research has many benefits and advantages that are not all prevalent in other types of research. It is specific, incorporates change to improve education, promotes

collaboration between educators, helps to provide a critical analysis and reflection of one's teaching practices, fosters professional growth of the educator and is explanatory and not just an implementation of a practice (Mertler, 2020). Action research is unique compared to other types of studies because it is not meant to be generalizable, but rather to help the researcher become a better educator and learn from their individual experience (Salkind, 2010). Action researchers seek to improve the situation of the participants (Greenwood & Levin, 2007; Stringer & Aragón, 2020). My goal was not to be able to address all high school classrooms, but to learn best practices for my own classroom. My experiences will be shared with others so that they might be able to replicate a similar study design on their own classroom, to learn from their own experiences.

I have identified my paradigm as following most closely with pragmatism. Pragmatism is concerned with finding solutions and applications that work to solve problems using any form of methodology that is necessary (Kaushik & Walsh, 2019). A pragmatic approach works well with action research studies because the researcher has the goal of improving a situation by any means. Mixed methods are a partner of the Pragmatic paradigm and can be used to address various forms of research questions in a broader scope (Frels & Onwuegbuzie, 2013). Educational philosophers like Rorty, Tashakkori and Teddlie believed in focusing more on the research problem and question rather than the exact method to perform the study (Creswell & Creswell, 2018). Mixed methods research looks at not only the purpose for the study, but also the procedures that will be used to meet those purposes. This type of study aligned well with the pragmatic paradigm because of the complexity of these choices in integrating qualitative and quantitative methods (Morgan, 2014a). For my own research, I felt that neither

quantitative nor qualitative approaches alone could gather the information that I wanted to know about the modified flipped classroom.

Because the purpose of my study was to evaluate the students' ability to use Adobe Premiere Pro and to understand their attitudes and perceptions about flipped learning and their self-efficacy with the software, a mixed methods approach was the most beneficial. Mixed methods involves collecting both qualitative and quantitative data and integrating the two to further gain insight that cannot be obtained with only one method (Creswell & Creswell, 2018; Mertler, 2020). Quantitative data is useful in analyzing statistical values, while qualitative is useful in describing a situation. Combining the two helped to answer my research questions. Mixed methods research studies can help to answer questions that would be impossible with using solely qualitative or quantitative methods (Morgan, 2014). More specifically, I conducted a convergent parallel mixed methods study, in which the researcher "converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem" (Creswell, 2014, p.44). The data was collected around the same time and then information was consolidated or integrated together to yield results. This integration of information aided in the interpretation of the findings. This design worked best for my study because I collected all of the data, qualitative and quantitative, in the same time span and then analyzed the data afterwards without any further data collection.

Setting and Participants

The setting for my action research was a large suburban high school located in the Midwest region of the United States. There are approximately 1800 students that attend the high school. Purposive sampling was used because the study took place in my

Multimedia II class, where I had no control over the roster for my course. This type of sampling was chosen because it was not practical to have a truly random sample when using a classroom for my participants and setting (Rudestam & Newton, 2007). Purposive sampling can be helpful when the research has phases that it builds upon (Sharma, 2017). Palinkas et al. (2015) describe how purposive sampling can be helpful in the mixed methods implementation designs because it can provide information rich cases within a limited number of resources.

Purposive sampling was used to determine the total participants within the study. The purposive sampling allowed for the collection of data from resources that were easily accessible (Palinkas et al., 2015), such as a classroom. Fourteen students were in the Multimedia II course, and all 14 agreed to be participants in this study. There were 11 (78.6%) males and 3 (21.6%) females. The sample was 85.7% (12 students) White, 7.1% (one student) Black, and 7.1% (one student) reported two or more races (Black and Hispanic). The students ranged from ninth through twelfth grades, their ages were between 15 and 18 years old. Two students (14.3%) qualified for special services with an Individualized Education Plan (IEP), these students fell under the realm of special education, but were often in general education classrooms. Three students (21.4%) had 504 plans. Section 504 of the Rehabilitation Act of 1973 protects the rights of students with disabilities within the education system (U.S. Department of Education, 2020). Both IEPs and 504s are documents that give modifications and special accommodations for students. The most common accommodation for this group was extended time to complete projects and frequently checking on their understanding of the task. Any student who was enrolled in the course could be a potential participant if they and their

guardians agreed and signed the consent forms. There were no consequences for non-participation in the study, nor were there any rewards or incentives for choosing to participate.

Six interviews were conducted, from a selection of the entire group. Purposeful representative sampling was used to gather a sample of students in which to conduct interviews, based on gender, race/ethnicity, and current class grade. When representative sampling is utilized, it helps to ensure that specific characteristics of the sample are chosen to represent the population (Tracy, 2020). Purposefully selecting participants helps the researcher to better understand their research problem and questions (Creswell & Creswell, 2018). The criteria was to ask students of varying genders, race/ethnicity, and age/grade level to participate in the interview and all six agreed. Pseudonyms were given to keep anonymity. Table 3.1 shows the pseudonyms and demographics for each of the six interview participants.

Table 3.1
Pseudonyms and Demographics of Interview Participants

Pseudonym	Gender	Race/Ethnicity	Age	Grade Level
Ava	Female	White	15	9
Dominic	Male	Black	18	12
Grayson	Male	White	15	10
Liam	Male	White	16	10
Mia	Female	White	17	12
Noah	Male	White	18	11

The classroom was in a computer lab. There were 30 desktop Dell computers, one for each student, and equipment such as green screen sheets, lighting, tripods, and headsets. The lab was updated with a new set of computers at the end of October 2022. Twenty-two of the desktop computers were on tables that line three walls of the

classroom. Additional tables were set up in the center of the classroom which housed eight more desktop computers. The teacher's desk was at the front of the classroom.

Multimedia II is a class within the business department at the high school and is one of the many practical arts electives that is offered. The majority of students in the class requested to be in the class, with a few that may have been added because another top choice was full. All students had taken Multimedia I, the pre-requisite for the course, with me as their teacher. The main objectives of the class were to record and edit videos using Adobe Premiere Pro. The class was 53 minutes long and met five days a week, Monday through Friday.

My role as the researcher was what Herr and Anderson (2005) describe as an insider in collaboration with other insiders, in which I as the teacher collaborated with other teachers and administrators as well as students, or participants. I created instructional videos, provided an in-class supplement to the video if the students needed to ask clarifying questions, observed the students working and interacting, monitored and assisted during independent work, evaluated the work, conducted pre- and posttests, evaluated and assessed video projects, distributed the survey, conducted interviews, and analyzed the data. In addition, it was my job to inform the participants of the reason for the study and the results of the study. I may have been subjected to biases in which I worked to avoid, such as biases towards positive or negative grading because of the relationship built with the students. The students may have also felt an obligation to participate and answer in certain ways because of their relationship with me as the researcher.

Intervention

The intervention for my action research study was the implementation of a modified flipped classroom approach. In a flipped model, an instructional video lesson is provided to students to watch before class, then in-class time is used for asking questions and completing practice work while the teacher moderates and assists when needed (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Schmidt & Ralph, 2016). In this study, there was a modification to the flipped classroom, in which the video lessons were viewed in the classroom, as described in the following sections. In a flipped learning approach, information-transmission using face-to-face lecture is replaced by active learning using video recorded lessons (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Serçemeli et al., 2018). These same active learning strategies were used in the modified version of the flipped classroom. These active learning strategies included viewing the video lessons at their own pace, using the lessons to create and edit videos of their own, helping peers when needed, and getting help and immediate feedback from the instructor. In the following sections I explained how the video editing program had been traditionally taught, then go on to explain how I implemented the in-class flip as an alternative method of instruction.

In-Class Demonstrations

In the past, Multimedia II has used an instructional model where I did in-class demonstrations on how to use the program. I projected my screen onto the SmartBoard, showing step by step how to use the video editing program. The students followed along at their own computer, mimicking what I did at the front of the room. I did a step within the program, then paused to wait for the students to copy the step on their own device.

This continued throughout the lesson. Then, the students were assigned a project to work on independently. This pedagogical model was not conducive to learning video editing software for students who were absent, who had slower cognitive processing speeds, or who needed to see a demonstration more than once. If a student was absent, I had to spend class time doing another demonstration to show the absent student what they missed. This took me away from being able to offer help to the rest of the class during their independent work. For students that needed more processing time between steps, this slowed down the rest of the class because I had to take more time between steps to make sure that all students had completed the step before we moved on to the next. If a student did not understand the directions the first time, I had to go back and repeat the step and give another demonstration on the SmartBoard before they were able to move on. This study sought to evaluate an alternative pedagogical model to assess if students were able to learn the video editing program using this model and to better understand how the students felt about the new model.

In-Class Flip

For this study, I used flipped learning in an approach called the in-class flip, where the students viewed the video lesson in the classroom and then moved on to practice new content. The instructional model was a modification of the original flipped classroom approach, with the major difference being that the students watched the video lessons independently during class, rather than as homework before class. Jennifer Gonzalez originated the term “in-class flip” (Braddock, 2020; Gonzalez, 2014; Güven Demir & Öksüz, 2022; Ramirez & Rodriguez, 2018), in which she describes it as using the basis of the flipped classroom approach, but instead of viewing the videos at home,

the video becomes a station in the classroom where students can watch the lesson then rotate to work on independent work or group work. In this model, students progressed at their own pace so that those who were struggling could take more time to view the lesson and those who were advancing more quickly could move on to the practice (Braddock, 2020).

The design of the intervention was a result of the literature research, as described in Chapter 2. Components of an effective flipped classroom were taken into consideration such as: video length and type, multimedia design principles, engagement, checking for understanding, and the students' and teacher's roles.

The students were provided 14 instructional videos on how to use Adobe Premiere Pro through the learning management system, Canvas. They watched the videos during class. The videos were short, as suggested by Akçayıra and Akçayıra (2018), Roehling (2018), and Schmidt and Ralph (2016). The videos ranged from the shortest at 1:52 to the longest at 7:43, with an average of 4:29. There was a mix of types of videos provided. Some were created by the teacher, as suggested by Bergmann and Sams (2015), while others were pulled from multiple sources, as suggested by Schmidt and Ralph (2016). Of the 14 videos lessons, 11 (78.6%) were created by myself, while three (21.4%) were created from outside resources found on YouTube. This allowed for the students to get exposure to a variety of video lesson authors.

Multimedia design principles were taken into consideration when creating and choosing the videos, as suggested by Lee and Choi (2018) and Lo (2018). Videos were created and chosen carefully to make sure that they were engaging, as recommended by Akçayıra and Akçayıra (2018) and Isaias (2018) to promote active learning. There were

seven of Mayer's multimedia principles that were utilized in the video lessons, as described in more detail in Chapter Two. The signaling principle (highlighting essential material) was used by the highlighting of the mouse movements as the video was being recorded so that the viewer could easily follow along with what was being clicked on within the program. The redundancy (graphics and narration, rather than on-screen text), modality (words are spoken) and temporal contiguity (graphics and narration simultaneously) principles were implemented by using a screencast to show the steps within the program, along with the narration from the video creator, but on-screen text was not used. The personalization (conversation type narration) principle was used when the narration from the videos was speaking to the viewer as though they were in the same room. The voice (human voice rather than machine voice) principle was used when the narration came from a live person rather than a computer-generated voice. Lastly, the segmenting (small, user-paced chunks of information) principle was used because the videos were short in length and each project or assignment was broken into multiple videos.

Questions about the content in the video were included, as recommended by Isaias (2018), Lo (2018), Moreno et al (2020), Roehling (2018), Ronnebaum (2018). I used the Studio function of Canvas, which is a program within the learning management system that allowed me to embed questions within the video, like a short quiz. The questions were used to monitor students' understanding of the content and for them to be able to self-assess their own understanding. There was one multiple-choice question for each video. The students were able to see their results immediately, as suggested by

Lopes and Soares (2018). This allowed them to self-assess to make sure that they understood the content before moving on to the projects.

The students then worked independently on their projects. During class time, they could ask me questions and get guidance on troubleshooting if they were unable to progress after watching the instructional videos. They participated in active learning by being able to interact in real-life situations within the class (Lo, 2018) by creating their own videos from the content and skills they learned from the lessons. Within this model, the students were also be able to interact with each other and work cooperatively to help each other learn, as suggested by Kerr (2020), Lo (2018), and Vereş and Muntean (2021). My role as the teacher was to monitor student progress and provide assistance to those students who needed it. I acted as a guide (Bergmann & Sams, 2012; Vereş & Muntean, 2021) and provided immediate feedback on their projects, as suggested by other research (Isaias, 2018; Kerr, 2020; Lo 2018; Vereş & Muntean, 2021).

The reasoning behind choosing this model was multifold. First, it was flexible. Students could watch the videos on their own time (Akçayıra & Akçayıra, 2018; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018; Tugun et al., 2017) and at their own pace. This was helpful for students that were absent or that had varying cognitive processing speeds. When they needed more time on one task before moving to another, this allowed them that flexibility without falling behind. When a student was absent, they did not miss out on instruction because the video lessons were available for them to watch when they returned. This provided a standardization of instruction for all students. Second, it was student-centered. The students had more ownership of their learning in this type of instructional model (Ishak, 2020; Kerr, 2020; Lopes & Soares,

2018). Unlike direct instruction where the information is fed to them, in the in-class flip, the students are responsible for following along with the steps in the video lessons in a hands-on approach. Third, it allowed for self-pacing and control. Students could pause or rewatch the video lessons as many times as they wished (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018). Fourth, numerous studies (Boateng et al., 2022; Cheng et al., 2018; Fulton, 2012; Guy & Marquis, 2016; Lopes & Soares, 2018; Say & Yıldırım, 2020) found that flipped learning had a positive effect on student achievement. Fifth, flipped learning promoted self-efficacy (Boateng et al., 2022). The student felt more confident in their ability to do the work because they were using a hands-on approach to complete the tasks after watching the video lesson. Sixth, the flipped model encouraged student-teacher interaction and immediate feedback (Fulton, 2012; Guy & Marquis, 2016; Lo & Hew, 2017; Vereş & Muntean, 2021). Lastly, the modified flipped classroom model combatted the disadvantages of a traditional flipped model of not having access to the videos outside of the classroom (Aidoo et al, 2022; Say & Yıldırım, 2020; Sigurðardóttir & Heijstra, 2020) and making sure the students completed the pre-class work (Akçayıra & Akçayıra, 2018; He et al., 2016; Low & Hew, 2018; Lopes & Soares, 2018). In the modified flipped classroom model, the students watched the videos in-class, so they did not need to have adequate access outside the classroom. They were not required to do any pre-class work because the work was done within the classroom.

Data Collection

In this mixed methods research study, a variety of data sources was utilized and aligned to the research questions (Buss & Zambo, 2014). This process is called

triangulation and assisted the researcher in the validity of their communication and to reduce misinterpretation (Bloomberg & Volpe, 2015; Creswell & Creswell, 2018). Four data sources were planned for this study, and included pretest-posttest Adobe certification tests, two student artifacts (project #1 and project #2), a post-survey by the student, and student interviews. Each of the techniques offered unique insight and was specifically aligned to the research questions, as seen in the alignment table below (Table 3.2). The data collection methods are described in more detail in the following section.

Table 3.2
Alignment of Data Sources and Research Questions

Research Question	Data Sources
RQ1. How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School?	• Pretest-Posttest Adobe Certification Tests • Student Artifacts (Project #1 and Project #2)
RQ2. What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School?	• Post-Survey • Student Interviews

Quantitative Data

The quantitative data was collected through pretest-posttest Adobe certification tests, two student artifacts (project #1 and project #2), and post-survey by the student. Each one of the instruments is explained in more detail in the following sections.

Pretest- Posttest Adobe Certification Tests

This quantitative data collection method followed a pretest-posttest design, where "all participants are tested prior to exposure to a variable of interest and again after exposure" (Adams & Lawrence, 2019, p.414). A pretest was given at the beginning of the study and a posttest was given at the end of the study to collect data on content

knowledge of the Adobe Premiere Pro program. The main purpose of this data collection method was used to determine if the students' ability to use the Adobe Premiere Pro program correctly changed after the intervention. This was aligned to RQ1. The pretest-posttest design offered a good alternative since a true experiment was not an option (Adams & Lawrence, 2019).

The pretest and posttest was administered as part of the certification test for Adobe Certified Professional in Adobe Premiere Pro, called the *Digital Video using Adobe Premiere Pro 2022* exam. The test measured five major standards. The portion of the pretest and posttest data that was collected was from the fourth standard, Creating and Modifying Visual Elements. There were seven sub standards from the Adobe Certified Professional (2021b) website under Exam Guides (see Appendix A). These sub standards were tested in the certification test and were used to guide instruction.

The pretest-posttest Adobe certification tests were administered by Certiport, a PeasonVUE counterpart (Adobe Certified Professional, 2021c). The tests were timed and took 50 minutes, and had two sections: a question section with selected response items and a task section with in-app activities to complete (Adobe Certified Professional, 2021c). Certiport conducted the grading of the tests and produced percentage scores for each of the five major standards, in which the scores from standard four were collected for analysis. The tests are copywritten, therefore they cannot be reproduced and samples cannot be taken from them.

The tests were developed by a content development team that were considered subject matter experts, with three or more years teaching subject related courses and two or more years using the program (Certiport, 2022a). Certiport claimed that their tests

were valid and reliable, stating that they used psychometricians that analyzed the exam items to be sure they were certifying quality candidates (Certiport, 2022b). They update the exams when needed. Certiport does not publish the results of their psychometric analyses.

A senior product manager from Certiport verified that there are two forms of the certification test that the students will be assigned to at random by Certiport (M. Grzybowski, personal communication, September 2, 2022). When they took the test a second time, they were given the alternate form (M. Grzybowski, personal communication, September 2, 2022). Having multiple forms of the test can help to produce valid data because the participants are not familiar with questions on the posttest (Sanders, 2019). If a participant remembers the question from the pre-test an improvement on the posttest could be from the recognition of the question instead of a change in ability (NDTAC , 2006; Sanders, 2019; Urbina, 2014). It might become more about the exposure to the question than the construct being measured (Kolen & Brennan, 2014). This is called practice effects. To combat practice effects, equating techniques can be used, such as alternate forms and parallel forms (Urbina, 2014). An alternate form is where multiple tests can be administered identically that contain alike content (Urbina, 2014) so coverage and procedure are equated. Parallel forms are a stricter version of this where not only are the content and procedures alike, but so are the statistical characteristics (Urbina, 2014). Certiport makes claims that they use a scaling mechanism to manage their equating process (2022a).

Student Artifacts

Two student artifacts were used to assess the student outcomes for the Adobe standards 4.1 through 4.7 (see Appendix A) and aligned with RQ1. Project #1 (see Appendix B) had the students create a video in which they had to import three clips, arrange them in a split screen, and add design elements such as the rectangle tool, text with modifications, speed change, and color change. In Project #2 the students recorded a day in the life vlog. They had at least 15 clips throughout their day that they ordered properly, added text, transitions, motion graphics, and background music (see Appendix C).

Rubrics can help assess tasks and multifaceted projects (Zhang et al., 2017). Analytic rubrics were used to score the projects in this study. Analytic rubrics "separate the critical aspects of a performance into discrete elements for scoring; each element receives a separate score, which may then be summed into a total score" (Peeters, 2015, pp.663-664). Each subsection of the standards was separated out and assessed on its own within the rubric to better pinpoint where the students were lacking content knowledge and skills. Peeters (2015) also recommended a four-point rating scale for the analytic rubric. The four points on the rubrics for this study represented Distinguished, Proficient, Emerging, and Needs Work. I worked under the auspices of three other content specialists within the school district, which had reviewed and established validity of the rubrics. Both projects were collected as mp4 files that the students submitted to the school's learning management system, Canvas. Rubrics were printed on paper and used to score the submissions. The projects were also evaluated by another content specialist to provide additional validity.

Post-Survey

Surveys can be used to gather many different types of information in a short period of time (Mertler, 2020). “A survey design provides quantitative description of trends, attitudes, and opinions of a population, or tests for associations among variables of a population” (Creswell & Cresswell, 2018, p.242). They are typically considered to be quantitative data sources, but they can also include open-ended questions, which would take on more of a qualitative characteristic (Mertler, 2020). Educational researchers can use surveys to learn more about feelings, attitudes, and perceptions of participants (Johnson & Christensen, 2017).

There was a survey conducted, occurring after the intervention. This was considered cross-sectional, because it was given at one point in time (Creswell & Creswell, 2018). The main purpose of the survey was to collect data on the perceptions of the modified flipped classroom and aligned with RQ2. The survey was adapted to fit the theme of this study and was administered through Jotform. Jotform is an online platform, free to use, and the data can be easily converted to a spreadsheet. The survey followed Johnson and Christensen’s (2017) suggestion of being clear, precise, and relatively short.

The survey was adapted from Aljaraideh (2019). Permission was given by the author to use and adapt the survey to fit the theme of this study (Y. Aljaraideh, personal communication, September 28, 2022)(see Appendix D). The 30-item survey used a five-point scale, ranging from strongly agree to strongly disagree (see Appendix E). Including a middle or neutral reference point is a less aggressive style of surveying and allows participants who truly hold a neutral view to express that (Johnson & Christensen, 2017; Mertler, 2020). Aljaraideh’s (2019) survey consisted of two parts. The first part was

demographic information including the type of University, study year, and gender. The second part of the survey was focused on the students' perceptions of the flipped classroom. A sample of the questions included: *The modified flipped classroom is more engaging than the traditional classroom*; *I got the ability to self-pace my learning with a modified flipped classroom*; and *The modified flipped classroom learning has reduced my dependency on the instructor*. The original demographic questions were adapted for this post-survey to include age, grade level, race, and gender. The second section in this post-survey was adapted to fit the modified flipped classroom model. A third section was added to this survey, which included open-ended questions, discussed in the next section. The original and adapted versions of the post-survey are in Appendix E.

Aljaraideh's (2019) survey's reliability was checked by distributing it to 30 Jordanian faculty members and redistributing it two weeks later. The Pearson correlation coefficient had a .87 reliability (Aljaraideh, 2019). Any value over .5 is considered strong (Adams & Lawrence, 2019; Emerson, 2015). The survey was validated by a group of educational sciences faculty members from universities within Jordan (Aljaraideh, 2019). A reliability analysis was also ran on the adapted version of the survey, as described in Chapter Four.

Qualitative Data

The qualitative data collection methods in this study included open-ended survey questions and student interviews. Both are detailed in the following sections.

Open-Ended Survey Questions

The post-survey included five open-ended questions*: 1) What types of video lessons do you prefer? 2) How often do you use the pause, rewind, or rewatch functions of the*

video lessons? 3) What is your preferred duration (length of time) of video lessons? 4) How do you feel about video lessons compared to traditional in-class demonstrations for learning Adobe Premiere Pro? 5)What suggestions do you have for the teacher in regards to the video lessons for future classes? These questions were added to the adapted version of the survey and were developed by me. Open-ended questions allow for seemingly limitless responses, unlike the closed-ended questions, and provide the researcher the opportunity to discover unanticipated thoughts and feelings (Mertler, 2020). The open-ended survey questions aligned with RQ2.

The survey was examined before interviews were conducted in order to help develop interview questions. There were some findings from the survey that I wanted to investigate further during the interview, such as if the students preferred videos created by me or the ones that were found on YouTube.

Student Interviews

Semi-structured interviews with students took place at the end of the study. Interviews were face-to-face, with a limited number of open-ended questions (Creswell & Creswell, 2018) and aligned with RQ2.

The interviews lasted approximately 5-15 minutes, with an average of 7:44. I conducted the interviews one-on-one in a separate classroom. The interviews were semi-structured, where I started with a base question and then had the flexibility of asking follow up questions depending on the respondent's answer (Mertler, 2020). This allowed me control over the line of questions (Creswell & Creswell, 2018). They were recorded using an audio recorder on my iPhone and were transcribed at the conclusion of all interviews. In addition to the audio recording, it is suggested that the interviewer take

notes in case of equipment failure (Creswell & Creswell, 2018). The interview process took place during three school days, with three interviews the first day, two the second day, and one on the last day. Creswell and Creswell (2018), suggest limiting the number of questions to between five and 10. The eight questions I had chosen (see Appendix F) were focused on gathering the students' perceptions of the modified flipped classroom.

Data Analysis

A mixed methods research design allows the researcher to gain insight on both quantitative and qualitative data. The study can benefit from the strengths of both methods and the researcher can gain a better understanding of the connections and contradictions between the data (Shorten & Smith, 2017). The quantitative data collections for this study included (a) post-surveys, (b) pre- and posttest Adobe certification tests, and (c) two student artifacts. The qualitative data collections for this study included (a) post-survey open ended questions, and (b) student interviews. Table 3.3 below summarizes the alignment of the research questions, data sources, and data analysis methods.

Table 3.3

Alignment of Research Questions, Data Sources, and Data Analysis

Research Question	Data Sources	Data Analysis
RQ1. How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Francis Howell High School?	• Pretest-Posttest Adobe certification tests • Student artifacts (Project #1 and Project #2)	• Paired sample t-test • Descriptive statistics
RQ2. What are the students' experiences with the modified flipped classroom in a multimedia course at Francis Howell High School?	• Post-Surveys • Student Interviews	• Descriptive statistics • Inductive analysis

Quantitative Data

Pretest-Posttest Adobe Certification Tests. Descriptive statistics were used to analyze the results of the pretest-posttest Adobe certification test scores. The certification test measured five major standards of using Adobe Premier Pro. The test included subscales, where each standard receives its own score. This study focused on the scores for standard four. The mean was found for the scores of the pretest and posttest and compared. A paired samples t-test was used to compare the pre- and posttest scores. Paired samples t-tests are used to focus on the difference between the scores of each pair, or in this case the pre- and post- results (Adams & Lawrence, 2018). This was used to determine if the students' content knowledge changed after the intervention.

Post-Survey. The analysis of post-survey rating scale on the students' perceptions of flipped learning used descriptive statistics. Frequency and central tendency were used for the rating scales on the post-survey. Cronbach's alpha was used to check the consistency among scale items (Adams & Lawrence, 2018). Cohen's d was computed to measure the effect size (Hatcher, 2018).

Student Artifacts. The descriptive statistics were used to analyze the student artifacts, using Project #1 and Project #2 rubric scores to find central tendency. More specifically the mean, or average, of the total score will be used to see what the typical result was. Seeing the disbursement of scores helps to better understand what the data are expressing (Pederson, 2017). Standard deviation was used to describe the dispersion of the data and the variability around the mean to put the scores into perspective (Yeo & Cacciatore, 2017). The combination of these allowed for additional information to be gathered on the ability of the student to use Adobe Premiere Pro.

Qualitative Data

An inductive analysis approach was conducted on the qualitative data. Inductive analysis allows for the researcher to reduce a large amount of information into themes that will set the framework for presenting the findings (Mertler, 2020). In an inductive analysis, the data must be analyzed from the bottom up by first finding codes, organizing the codes into broader categories and themes (Creswell, 2014). The process by which this data was analyzed included the production of codes, analytic memos, categories, themes, and assertions. A process called codeweaving was used to synthesize the codes across the various sources into a narrative in which unity can be reached (Saldaña & Omasta, 2017).

Procedures and Timeline

This study was conducted in three phases: 1) Pre-Intervention, 2) Intervention, and 3) Post-Intervention. Table 3.4 below lists what expectations were included in each phase, the timeline for each phase, and the roles of the students and researcher in each phase. Following the table, each phase is described in greater detail.

Table 3.4
Expectations, Timeline, and Roles

	Phase 1 Pre-Intervention	Phase 2 Intervention	Phase 3 Post-Intervention
Expectations	• Participant identification • Consent and Assent forms • Pretest Adobe certification test	• Video lessons • Student artifacts • Posttest Adobe certification test	• Post-Survey • Interviews
Time Frame	• 1 week	• 5 weeks	• 1 week
Students' Role	• Sign and return Assent form • Have guardian sign Consent form and return	• Watch video lessons • Produce student artifacts • Complete posttest	• All students complete online post-survey • Six students engage in interviews

	• Complete pretest		
Researcher's Role	• Handout and collect Consent and Assent forms • Administer pretest and collect results	• Provide video lessons on LMS • Facilitate daily classroom activities • Provide student artifact instructions and rubrics • Answer student questions and troubleshoot • Collect student artifacts • Administer posttest	• Administer post-survey and collect results • Conduct interviews • Transcribe recordings and conduct initial coding

Pre-Intervention

The first phase consisted of identifying the participants and completing the pretest Adobe certification test. The participants were identified based on the enrollment in the course. All students enrolled had an opportunity to be a participant. The students in our courses were allowed to switch in and out of the class for the first ten school days, or two weeks, of the semester. Once the roster was set, I began phase one. A description of the study was explained to the students and consent (see Appendix G) and assent forms (see Appendix H) were distributed to the students. Students returned signed assent and consent forms after consulting with their guardians and getting the required signatures and approval. They were given one week to return these forms.

After all forms were collected, students completed the online pretest Adobe certification test through Certiport, a partner of Adobe. The pretest assessed the students' current capabilities of using the Adobe Premiere Pro program, before the intervention had begun. It took two days to complete the pretest. The students had a total of 60 minutes to complete the Adobe certification test. Our class periods were 53 minutes long, and logging into the computers took additional time. This allowed the students to start the test

and save at the end of the class period, then resume the test the next day. Certiport also produced reports following the assessment to determine how the students scored in each major standard. I collected the results from the Certiport reporting page.

Intervention

During the second phase, the intervention took place. Phase two consisted of video lessons, two student artifacts, five assignments, and the posttest Adobe certification test. Table 3.5 outlines the six weeks of intervention activities. The second phase started approximately three weeks after the students were identified. This allowed me to establish the in-class demonstration instructional model that is typical in this course so that the students had something to compare to in addition to their experience in Multimedia I. During this time, the students learned other standards that were assessed in the Adobe certification test, but were not part of the standards that were being assessed for this study. These included topics such as working in the video industry, project setup and interface, and organizing video projects (Adobe Certified Professional, 2021b).

Table 3.5
Intervention Timeline and Activities

Week	Activity
Week 1	Student artifact- Project #1- five video lessons provided
Week 2	Finish Project #1; three short activities- six video lessons provided
Week 3	Continue the three short activities from the prior week.
Week 4	Student artifact- Project #2- three video lessons provided
Week 5	Finish Project #2; posttest Adobe certification test

Phase two began with the students getting instructions for student artifact- Project #1. They had seven class periods to complete this project. Data was collected using the rubric in Appendix B. There were five videos that corresponded to the standards in which Project #1 was assessed:

1. Video 1: How to create a split screen. Standards 4.1a. and 4.3a
2. Video 2: How to create a rectangle shape. Standard 4.1b
3. Video 3: How to add and modify text in a video sequence. Standard 4.2b.
4. Video 4: How to make color changes. Standard 4.5a.
5. Video 5: How to change clip speed and trim excess footage. Standards 4.3b and 4.4a.

Video lessons were provided to the students through the school's learning management system (LMS), Canvas. Instructions and rubrics for video projects were also provided through Canvas. Students watched the video lessons at their own pace, then answered one multiple choice question after each video to check for understanding. The video lessons were uploaded to Canvas Studio, a communication tool for communicating through media. Canvas Studio allowed questions to be added to the video and provided immediate feedback to the student. It also gathered analytics on the students, such as if they viewed the video and for how long. After watching the video lesson and answering the question, the students then proceeded to work on the student artifact- Project #1 using Adobe Premiere Pro. The student had the opportunity to watch the videos as many times as needed, as well as the ability to pause and rewind. The participants submitted their finished video project to Canvas.

I helped guide students that need clarification after the video lessons and troubleshoot any technical difficulties that arose. I monitored the students' progress throughout the projects and provided feedback and guidance when necessary.

During the second and third weeks of phase two, the students completed three short activities to learn additional standards. These short activities are practice

assignments that were not used to collect data for this study, but are part of the intervention. The students watched a total of six short videos and then completed the assignments:

1. Video 6: Adding titles with essential graphics. Standard 4.2a.
2. Video 7: How to create a text reveal title. Standards 4.2a and 4.2b.
3. Video 8: How to add a cross dissolve transition. Standard 4.5b.
4. Video 9: How to add a green screen effect. Standards 4.5d. and 4.6c.
5. Video 10: How to adjust audio using key frames. Standards 4.4b, 4.7a and 4.7b.
6. Video 11: How to add a voice over within the program. Standard 4.7a.

The students answered one question at the end of each video lesson to check for understanding. The instructions for each of the three short activities that corresponded to the video lessons were located in Canvas. A suggested timeline was given to the students to help keep them on track, but they worked at their own pace. The students uploaded their completed assignments to Canvas as well.

In week four and five of phase two, the students worked on their next student artifact- Project #2. Data was collected using the rubric in Appendix C. The students had seven class periods to complete the student artifact. The students used skills acquired from the previous video lessons in addition to three more video lessons that corresponded to the standards for Project #2:

1. Video 12: How to add and edit fonts. Standards 4.2b.
2. Video 13: How to add and edit motion effects. Standard 4.6b.
3. Video 14: How to add and edit transitions. Standards 4.5b and 4.5c.

Each of the videos had one question to answer at the end of the video to check for understanding, just as in previous weeks. The students submitted their finished video project to Canvas.

In the last week of phase two, the students completed the posttest Adobe certification test, which spanned over two days. The test used the same format as the pretest and was administered by Certiport. Just like the pretest, the students had 60 minutes to complete the posttest. They were able to stop and save at the end of the first class period, then resume the next day. I collected results of the posttest through the Certiport reporting page.

Post-Intervention

Phase three consists of the post-survey and student interviews. The post-survey was given on the last day of the fifth week from phase two, after the posttest Adobe certification test. The students completed a post-survey about their perceptions of the in-class flip. The survey was given through Jotform, an online survey creation tool. The survey consisted of 30 five-point scale questions and five open ended questions (see Appendix E). It took approximately 30 minutes to complete.

Following the survey, the interviews were given the following week, in a three-day span. Six participants engaged in one-on-one semi-structured interviews with me, which lasted approximately 5-15 minutes and consisted of eight open ended questions. The interviews were held during the class period, as to not disrupt the students from any other classes. I audio recorded the interviews with my iPhone for later transcription. I listened to the recordings the same day that they took place. This gave me the opportunity to take notes on important points or practical details that were helpful in subsequent

interviews (Rowley, 2012). At the conclusion of all six interviews, I then transcribed the audio recordings to prepare for inductive analysis.

Rigor and Trustworthiness

This mixed methods action research employed several methods of rigor and trustworthiness in order to provide accuracy and credibility within the study. Rigor within research studies shows that the researcher has taken time, care, effort, and thoroughness to ensure the study was conducted appropriately (Tracy, 2020). Trustworthiness within research studies, as described by Mertler (2020) shows the "accuracy and believability of the data" (p.315). Creswell (2014) encourages the use of multiple strategies of validity. Both the qualitative and quantitative data within this study underwent various validity strategies.

The quantitative data analysis used the methods of validity based on instrument content and internal consistency. In regards to instrument content, the questions on the surveys and tests aligned with the purpose of the data collection and the research questions (Johnson et al., 2020; McAteer, 2013; Mertler, 2020). Internal consistency helped in determining the reliability of the quantitative data (Mertler, 2020). The use of Cronbach's alpha was described in the previous section, Data Analysis.

The qualitative data analysis used the methods: (a) triangulation, (b) member checking, (c) peer debriefing, (d) audit trail, and (e) negative or discrepant cases. Thick, rich descriptions are also used throughout the analysis. Researcher subjectivity is described in Chapter One, and limitations of the study are described in Chapter Five.

Triangulation

Methodological triangulation was a pillar throughout this study. Triangulation is using multiple sources of data to integrate inferences that support consistent themes and provide credibility (Creswell, 2014; Efron & Ravid, 2019; McAteer, 2013; Mertler, 2020; Tracy, 2020). This study was triangulated by the use of various forms of qualitative data (interviews and open-ended survey responses) along with quantitative data (pre- and posttest scores, post-survey responses, and student artifact scores).

Member Checking

Member checking occurs when the participants are given the opportunity to review the findings of the research for accuracy (Creswell, 2014; Efron & Ravid, 2019; Mertler, 2020; Stringer & Aragón, 2020). The participants in this study were allowed to review the major findings and give comments on their perceptions of the accuracy of the data collection. Participants can check interview transcripts (Johnson et al., 2020), analytical thoughts, and the final draft to be sure that their ideas have been represented accurately (Efron & Ravid, 2019; Mertler, 2020).

Peer Debriefing

During the data analysis, the dissertation chair and a colleague provided peer debriefing. Peer debriefing occurs when other professionals review and evaluate the report (Johnson et al., 2020; Mertler, 2020). The dissertation chair reviewed and evaluated the analyses, followed a process of interrogation to make sure that all analysis possibilities had been exhausted, and gave suggestions. Another colleague also reviewed the materials and sections to critique the data analysis and interpretation and to ensure it could be understood by other outsiders.

Audit Trails

Audit trails provide evidence of decision making throughout the data analysis. They allow the researcher to look back on how they developed codes into categories and themes (Carcary, 2020; Grant, 2016a). Audit trails detail the steps in moving from raw data to the final interpretation (Carcary, 2020). They also allow a look at the decision-making process throughout the study (Johnson et al., 2020). This study used audit trails when analyzing the qualitative data by the recording of memos, how they developed into codes, and how those codes were broadened into categories and major themes. The researcher kept a detailed spreadsheet during the process of memo, code, and theme development.

Negative or Discrepant Cases

Lastly, negative or discrepant cases were reported within this study. Creswell (2014) encourages the presentation of negative information that may not match major themes as a validity strategy. In any study, it was important to present counter or contradictive findings along with data that does not follow the major themes, as they cannot all align all of the time (Grant, 2016a). These findings were discussed within this research study and may give insight on additional avenues that one may want to pursue in future research.

Plan for Sharing and Communicating Findings

The plan is to share my research findings with three levels of stakeholders: the participants, colleagues within my school district, and at local conferences. My mixed-methods study included a post-survey and interviews, in which the participants' privacy would best be protected by the use of aliases or pseudonyms (Creswell & Creswell,

2018). Increasing anonymity and confidentiality enhances reliability and validity (Bannister et al., 2006).

I will present my findings using a visual presentation. Visual presentations allow the researcher to present images as a portfolio of their project (McAteer, 2013). More specifically, the results will be presented in a PechaKucha 20x20, as suggested by Mertler (2020), in which 20 images are shown in a precise order along with a 20-second description for each image. The use of visual aids and keeping it brief will help my audience stay engaged. The participants of this study were part of a semester-long course that is no longer in session, so I will give them the opportunity to view my findings by scheduling a meeting or sending through email if they prefer. I will allow for questions and comments at the conclusion of my presentation, in order for the participants to feel fully involved in all aspects of the study and to ensure that they understand how they have contributed to future decision making.

At the next level, it is suggested to share the action research findings with colleagues (Baumfield et al., 2013; Duesbery & Twyman, 2020; Efron & Ravid, 2019; McAteer, 2013; Mertler, 2020). I will have the opportunity to present my findings in my Professional Learning Community (PLC), building-level professional development meetings, and school-district level professional development meetings. I will present main aspects such as background information, the purpose of the study, methodology, results, conclusions, action plans, and will allow for a question-and-answer session. PLCs meet each Wednesday after school hours to discuss how the students are doing academically and to learn from each other as educators. My PLC is made up of the Business Department teachers within my school. Building-level professional

development (PD) takes place four times per school year, where the faculty is divided up and rotates through stations. My building-level PD is made up of a group of teachers with representation from all departments within the school. The district-level professional development also meets four times per school year and the educators get to decide which sessions they would like to attend. My district-level PD group is made up of teachers of various subjects from all three high schools in our district. Occasionally administrators will attend the PLC, building-level PD, and district-level PD meetings. They are there for support, to observe the conversations that are taking place, and to share the insights from group to group. My presentations to all these groups would be similar so that they may generate ideas about new pedagogical models within their own classrooms, with some tweaking between subjects. The administrators would benefit from seeing the same presentation so that they can understand why it is being implemented, they may be able to give their own ideas and suggestions, and they can share with others when a need arises. Glenn et al. (2017) suggest sharing our action research with learning communities as a way to reflect and to get insights and ideas from others.

Finally, it is also recommended to share action research findings at conferences (Baumfield et al., 2013; Efron & Ravid, 2019; McAteer, 2013; Mertler, 2020). I would like to present at the annual conference held by the Midwest Education Technology Community (METC), an International Society for Technology in Education (ISTE) affiliate dedicated to supporting educators using technology (Midwest Education Technology Community, 2015). METC has changed their conference name to Innovate as of 2023. Their conference is held every spring in the St. Louis area. Sharing my findings with a local network of educators can also help to foster ideas about adapting

instructional models within their own schools. Whether they plan to mimic my approach, modify it, or if it helps to spark their own creation, all outcomes could be beneficial to educators and their students.

CHAPTER 4

ANALYSIS AND FINDINGS

The objective of this section was to gather the results from both the quantitative and qualitative data sources. The analysis methods along with results were then detailed. The quantitative findings came from three data sources: pre-posttests, student artifacts, and post-surveys. The descriptive and inferential statistics of the pre-posttests are provided, followed by the descriptive statistics of the student artifacts and post-surveys. In addition, two data sources provided the findings for the qualitative data: semi-structured interviews and open-ended post-survey questions. The inductive analysis process is described including the production of codes, analytic memos, categories, themes, and assertions. From there, insights into each theme are presented.

Quantitative Data Analysis and Findings

The quantitative data collection for this study included the following instruments: a pre- and posttest Adobe certification test, student artifacts in the form of rubrics from two projects, and post-surveys. The pre- and posttests and student artifacts are aligned to RQ1, *How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School?* The post-survey is aligned to RQ2, *What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School?*

Pre- and Posttest

The pre- and posttests were administered through Certiport, a counterpart of PearsonVUE, to evaluate the students' ability to use Adobe Premiere Pro. The tests are recognized by Adobe as an Industry Recognized Certification (IRC). The pre-test was administered before the intervention and the posttest was administered after the intervention.

The examinations were created by a content development team comprising subject matter experts, each having three or more years of experience teaching courses related to the subject and a minimum of two years using the program (Certiport, 2022a). Certiport asserts the validity and reliability of their tests, emphasizing the involvement of psychometricians who scrutinize exam items to ensure the certification of high-quality candidates (Certiport, 2022b). However, the results of their psychometric analyses are not publicly disclosed.

Descriptive Statistics

The pretest and posttest scores were entered into an Excel spreadsheet, then saved as a CSV file. The CSV file with pretest and posttest scores was uploaded to JASP for analysis. Table 4.1 shows the mean scores and standard deviations for both tests. The mean score increased by 29.42 from the pretest to the posttest. This is a 170.16% change in scores. The descriptive plots are provided in Figure 4.1.

Table 4.1
Adobe Certification Test Descriptive Statistics (n = 14)

	M	*SD*
Pretest	17.29	14.67
Posttest	46.71	13.88

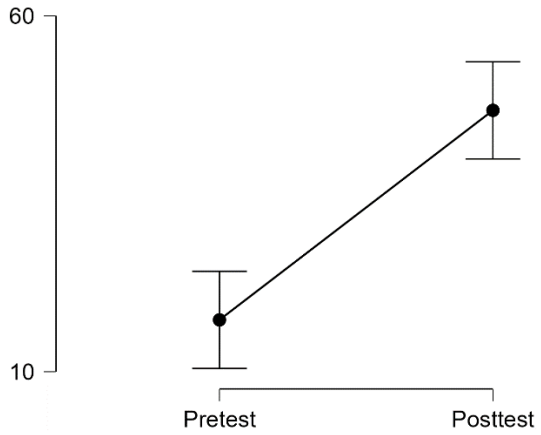

Figure 4.1
Descriptive Plots for Adobe Certification Tests Scores

Inferential Statistics

The pretest and posttest scores were further analyzed in JASP. A classical paired samples t-test was conducted to compare pretest and posttest results. This test was employed to ascertain whether there existed a notable disparity between pretest and posttest scores following the implementation of the intervention (Adams & Lawrence, 2019). The Shapiro-Wilk test for normality ($p = .26$) verified that the sample data was normally distributed because the scores could not be rejected at $\alpha = .05$ (Peng, 2009). The t-test was able to be used since there was no significant deviation from normality. The posttest mean scores were significantly higher ($p < .001$) than the pre-test mean

scores as indicated by $t(13) = -6.59$. There was also a large effect size, as interpreted by Cohen's d of -1.76 (Adams & Lawrence, 2019; Hatcher, 2018).

Student Artifacts

The student artifacts used in this study consist of two rubrics, one for Project #1 (see Appendix B) and one for Project #2 (see Appendix C). Each of the rubrics used a four-point rating scale: Distinguished, Proficient, Emerging, and Needs Work.

I collaborated with three other content specialists in the school district who assessed and confirmed the validity of the rubrics. Each of the projects was evaluated by a second content specialist to provide additional validity. The second content specialist confirmed the scores on the rubrics were accurate.

Descriptive Statistics

The scores for both projects were entered into Excel. Table 4.2 gives the mean, median, standard deviation, and range for both projects. Project #1 had a total of 72 points possible. Project #2 had a total of 70 points possible. A passing or proficient score was 60% or higher.

Table 4.2
Descriptive Statistics for Student Artifacts (n=14)

Project #1	*M*	*SD*	Range
Value	65	6.71	48-72
Percentage	90.28	9.32	66.67-100.00
Project #2			
Value	55.21	13.25	27-70
Percentage	78.88	18.93	38.57-100.00

On Project #1, 100% of students showed proficiency. On Project #2, 11 students showed proficiency, while three were not proficient.

Post-Survey

The post-survey was adapted by me from Aljaraideh (2019) to fit the specific study of a modified flipped classroom. Appendix E shows the original question along with the adapted version of the question. The first part of the survey included demographic information, including age, grade level, race, and gender. The second part of the survey included 30 items, and used a five-point scale ranging from strongly agree to strongly disagree.

The reliability of Aljaraideh's (2019) survey was assessed by administering it to 30 Jordanian faculty members and then redistributing it two weeks later. The Pearson correlation coefficient indicated a reliability of .87 (Aljaraideh, 2019). A value over .5 is considered strong (Adams & Lawrence, 2019; Emerson, 2015). A team of faculty members specializing in educational sciences from Jordanian universities validated the survey (Aljaraideh, 2019).

The data from this study was entered into Excel and the five-point scale of strongly agree to strongly disagree was converted to 1 to 5. Then the spreadsheet was exported as a CSV file. The CSV file was uploaded to JASP to run a reliability test. Cronbach's alpha was used to compute the internal consistency of the scales, or the correlation among responses to each item within the scales (Adams & Lawrence, 2019). Cronbach's alpha for the data set was $\alpha = .962$. This is considered internally consistent because it is higher than .7 (Adams & Lawrence, 2019).

Descriptive Statistics

The survey scales were further analyzed for the frequencies and descriptive statistics of each question item using JASP. Table 4.3 below gives the breakdown of each item with its frequencies (in percentage of the sample), mean, and standard deviation. Strongly agree was represented with 1, agree was represented with 2, neither agree nor disagree was represented with 3, disagree was represented with 4, and strongly disagree was represented with 5. The response means range from 1.93 to 3.86, with an overall M = 2.47 (SD = 0.98).

Table 4.3
Frequencies and Descriptive Statistics for the Post-Survey Questions (n =14)

	Frequency (%)					Descriptive Statistic	
Question Item	Strongly Agree (1)	Agree (2)	Neither Agree nor Disagree (3)	Disagree (4)	Strongly Disagree (5)	*M*	*SD*
Q1. I feel that watching videos and taking notes contribute efficiently to my learning.	14.29	57.14	21.43	7.14	0.00	2.21	0.80
Q2. With the modified flipped classroom model, I feel more prepared for my projects.	7.14	50.00	42.86	0.00	0.00	2.36	0.63
Q3. I like watching the lesson on video.	14.29	42.86	28.57	14.29	0.00	2.43	0.94
Q4. I try to learn as much as possible while watching the videos.	28.57	57.14	7.14	7.14	0.00	1.93	0.83
Q5. I wish more instructors used the modified flipped classroom model.	7.14	42.86	28.57	21.43	0.00	2.64	0.93
Q6. I frequently pause or repeat parts of the videos in order to increase my	28.57	35.71	21.43	12.29	0.00	2.21	1.05

understanding of the material.							
Q7. Modified flipped classroom encourages me to practice critical and creative thinking.	14.29	14.29	64.29	7.14	0.00	2.64	0.84
Q8. Learning foundational content through video lessons greatly enhances my understanding of material.	21.43	50.00	28.57	0.00	0.00	2.07	0.73
Q9. Modified flipped classroom gives me the opportunity to ask more questions inside the classroom.	14.29	35.71	21.43	21.43	7.14	2.71	1.20
Q10. Modified flipped classroom attracts my attention to the learning process.	21.43	14.29	50.00	0.00	14.29	2.71	1.27
Q11. With modified flipped classroom we have to do more work on our own.*	0.00	0.00	42.86	28.57	28.57	3.86	0.86
Q12. Modified flipped classroom can be a suitable learning strategy.	28.57	35.71	35.71	0.00	0.00	2.07	0.83
Q13. Modified flipped classroom can improve interest in exploring topics.	28.57	28.57	42.86	0.00	0.00	2.14	0.86
Q14. I felt prepared to complete course tasks in class after listening to the video content.	14.29	35.71	42.86	7.14	0.00	2.43	0.85
Q15. Modified flipped classroom is more engaging than the traditional classroom.	21.43	28.57	28.57	21.43	0.00	2.50	1.09
Q16. Modified flipped classroom gives me less class time to practice the concepts of the course.*	0.00	28.57	28.57	35.71	7.14	3.21	0.97
Q17. Modified flipped classroom reduces the effort to understand the basic knowledge of the subject matter.	7.14	35.71	35.71	21.43	0.00	2.71	0.91
Q18. Modified flipped classroom, along with delivery of content through video lessons and problem solving in	14.29	42.86	42.86	0.00	0.00	2.29	0.73

class, is an instructional method appropriate for this class.							
Q19. I am more motivated to learn the concepts of the course via the modified flipped classroom.	14.29	28.57	50.00	7.14	0.00	2.50	0.85
Q20. Modified flipped classroom improved collaborative learning.	28.57	14.29	35.71	21.43	0.00	2.50	1.16
Q21. Modified flipped classroom can improve interest in class.	28.57	14.29	50.00	7.14	0.00	2.36	1.01
Q22. I got the ability to self-pace my learning with a modified flipped course.	42.86	28.57	21.43	7.14	0.00	1.93	1.00
Q23. Modified flipped classroom gives me greater opportunities to communicate with other students.	28.57	21.43	42.86	7.14	0.00	2.29	0.99
Q24. I believe that I am able to learn material with modified flipped classroom instruction better than with traditional in-class demonstrations.	14.29	14.29	57.14	14.29	0.00	2.71	0.91
Q25. I would recommend modified flipped classroom to a friend.	14.29	28.57	42.86	14.29	0.00	2.57	0.94
Q26. Modified flipped classroom matches my learning style.	21.43	14.29	42.86	21.43	0.00	2.64	1.08
Q27. I feel that mastering learning through modified flipped classroom improved my academic achievement.	14.29	21.43	57.14	7.14	0.00	2.57	0.85
Q28. Modified flipped classroom did not limit my interaction with the instructor.	21.43	35.71	42.86	0.00	0.00	2.21	0.80
Q29. I feel that mastering learning through modified flipped classroom	21.43	21.43	50.00	7.14	0.00	2.43	0.94

improved my course understanding.							
Q30. Modified flipped classroom learning has reduced my dependency on the instructor.	21.43	28.57	42.86	7.14	0.00	2.36	0.93

* *Used reverse coding for item*

The survey question items that stood out the most were concerning self-efficacy, productivity, collaborative learning, and preparedness. For *Q1. I feel that watching videos and taking notes contribute efficiently to my learning*, 71% of students agreed or strongly agreed (M = 2.21, SD = .80). 86% agreed or strongly agreed (M = 1.93, SD = 0.83) with *Q4. I try to learn as much as possible while watching the videos.* For *Q8. Learning foundational content through video lessons greatly enhances my understanding of material*, 71% of students agreed or strongly agreed and no student disagreed (M = 2.07, SD = .73). Another 71% agreed or strongly agreed (M = 1.93, SD = 1.00) with *Q22. I got the ability to self-pace my learning with a modified flipped course.* However, for *Q9. Modified flipped classroom gives me the opportunity to ask more questions inside the classroom,* 29% either disagreed or strongly disagreed (M = 2.71, SD = 1.20). This was the largest number of students that disagreed on any one question item. It should be noted, though, that 50% of students agreed or strongly agreed with this statement.

Qualitative Data Analysis and Findings

This study collected data from two sources: five open-ended post-survey questions and six semi-structured interviews. I devised the five open-ended questions that were integrated into the modified survey. They were used to gather information from all students about their preferences in regards to the video lessons. I also crafted the semi-structured interview questions that focused on gathering the students' perceptions of the

modified flipped classroom. Each of the qualitative data sources aligned to RQ2, *What are the students' experiences with the modified flipped classroom in a Multimedia course at Jefferson High School?* Initial coding efforts were distilled, refined, and in some cases merged with one another. The subsequent sections outline the procedure and showcase the discoveries.

Data Analysis Overview

This research study used an inductive analysis approach. Inductive analysis is when the researcher derives significance from the data gathered during fieldwork (Creswell & Creswell,2018). Tracy (2020, p.28) describes this method as "bottom-up" or "little-to-big". I started by collecting comprehensive information from students and subsequently organized this data into categories or themes (Creswell & Creswell, 2018). Inductive analysis is beneficial in obtaining information because it allows the researcher to approach data without preconceived hypotheses (Schwandt, 2007).

Qualitative data analysis produced three rounds of first cycle coding, three rounds of second cycle coding, and three rounds of third cycle coding. Codes, analytic memos, categories, and themes were created and organized in an Excel spreadsheet to create and audit trail (Carcary, 2020; Grant, 2016a). Coding is the systematic organization of information by isolating chunks of text and annotating the margins with a word that represents the information (Creswell & Creswell, 2018). Analytic memos are written notes to help the research interpret the codes and the relationships between them (Tracy, 2020). Screenshots, photos, and tables are included to ensure transparency and accountability. This allowed me to aim to uphold rigor and trustworthiness (Tracy, 2020).

Data Transcription

The six semi-structured interviews were recorded with my iPhone 13 Pro using the built-in Voice Memos app. The files were then downloaded in a m4a format, an MPEG-4 audio file. The m4a audio files were then uploaded to the Transcribe app, a free download from the Apple App Store. A txt, text file, was then downloaded from the app. I then converted the txt file into a Microsoft Word file.

Next, I listened to the interviews again while going through the Word files, to double-check the text and correct any mistakes that the transcription app had made. Time stamps and accuracy percentages were also removed from the text.

The open-ended survey responses were collected through Jotform, a free online survey platform. The responses were then downloaded into an excel spreadsheet.

The transcriptions and open-ended survey responses were then put into a three-column table on a landscape-oriented Word document to prepare for coding. The next section will provide an in-depth account of the data coding process.

Cycle One: Codes

The first cycle of coding included three rounds. The first round incorporated eclectic coding. The second round involved a review of the first round of codes. The third round was comprised of code classification. These rounds are detailed in the subsequent sections.

Round One- Eclectic Coding

The three-column table, mentioned above, included a column on the left for analytic memos, a middle column for the transcription and survey responses, and a right-sided column to write the first round of codes. I chose to use manual coding to start. This included developing codes using pencil and paper, rather than with a word processing program. Saldaña (2021) recommends coding on hard copy printouts in the first round. This can help give the researcher more control and ownership over one's work (Saldaña, 2021). The handwritten text from the analytic memos and codes aligned with the printed text in the middle column. While manual coding can be tedious, it allows the researcher to start the coding process more quickly because they do not have to take a considerable amount of time, usually several weeks, to learn an electronic coding program (Basit, 2003).

During this first round, I read through the transcript line-by-line, writing down analytic memos and codes in their respective columns. Saldaña (2021) describes analytic memos as notes that the researcher makes to themselves about the participants or process under investigation. It is used as a reflection space for the researcher to help tell the story of what is happening surrounding the data. Analytic codes are typically centered on deciphering the significance of codes and exploring the relationships among them (Tracy, 2020). Charmaz (2015) describes memo-writing as a way for researchers to scrutinize and improve their codes by transforming from a summary of their experience to engaging in a more abstract analysis of it. See Figure 4.2 below for samples from the manual coding.

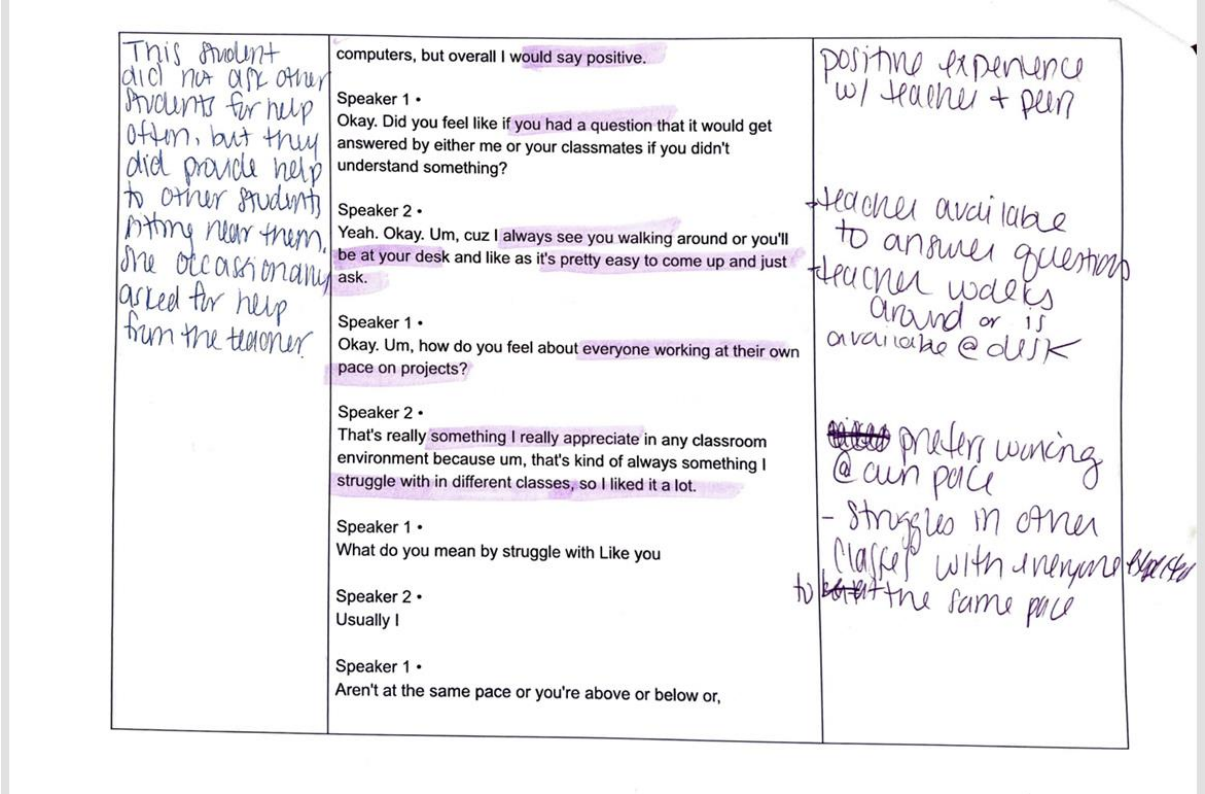

Figure 4.2
Manual coding sample

This initial first round of coding is referred to as eclectic coding. Eclectic coding is a form of open coding, which is appropriate as an exploratory technique for most qualitative data, in particular, for beginning researchers (Saldaña, 2021). It is flexible and does not require categorization while coding like initial and exploratory coding methods, but is done with the expectation of revised drafts (Saldaña, 2021). Eclectic coding allows the use of multiple coding methods done purposefully, which can later help to develop themes (Onwuegbuzie et. al, 2016). During this process, I consulted with my dissertation chair for guidance. The printouts with the transcript, analytic memos, and codes were also scanned and converted to a pdf.

Once the manual coding was completed, I organized the memos and codes into an Excel spreadsheet. There were a total of 265 codes distilled from the data sources in the first round. See Figure 4.3 below for samples of memos and codes that were created.

Memos	Coding 1
the student explains that she may not be working at the expected pace of everyone else depending on the type of assignment	varying working paces
This student asked the teacher a lot of questions	independent
He worked closely with two other students throught the course. They helped each other a lot.	interact with others
This student was disappointed that she didn't do as well on the certification test as she would have liked and is talking about a specific skill that she wanted to know for the test .	in-class demo preferred for specific tasks
Student finished projects in timely manner so he was able to have free time. Usually for 1-2 class periods. He grasped concepts quickly and worked diligently.	time at end to do what he wants (choice), free time

Figure 4.3
Sample of Memos and Codes

Round Two- Review Codes

Round two of the first cycle of coding involved me doing a second review of the data sources. After an additional run through of the interview transcript and open-ended survey responses another 138 codes were generated. Many of the codes in the second round were new codes that were pulled out since I had gained more experience after the first round.

I then examined the codes from the first and second round and refined them into a total of 330 codes. Table 4.4 shows the data sources and number of codes associated with each. This was a process in which I revisited the code language and carried out a secondary improvement. Analytic memos were also examined more closely to help with distinguishing the meaning of the data into significant and purposeful codes.

Table 4.4
Qualitative Data Sources and Number of Codes

Data Source	Interviews	Surveys
Number of Codes	251	79

Lastly, I went through the codes to combine duplicates, which left a total of 238 codes at the end of round two. I added the number of duplicates to the end of the codes with a (x). Examples of this are the codes *advantage: self-paced (x4)* and p*in-class flip allowing for support from students (x5)*.

Round Three- Code Classification

After reviewing the codes that were produced, I was able to distinguish four classifications: process, values, emotion, and magnitude. Classifying codes is a process in which the researcher is making the codes part of a system that can later be used to develop categories (Saldaña, 2021).

Process coding refers to action in the data, which can be observable or conceptual (Saldaña, 2021). They typically use gerunds to describe the action (Saldaña, 2021). Utilizing action codes ensures our specificity and prevents us from making theoretical assumptions (Charmaz & Belgrave, 2012). In this study I had to go back to some of the original wording of the codes and modify the language to pull out the action that was happening without losing the meaning behind the code. Examples of process codes within this study include: *video lessons providing ability to re-watch* and *in-class flip allowing for support from the teacher*.

Values coding is the process of assigning codes to qualitative data that capture a participant's values, attitudes, and beliefs, thereby representing their unique perspectives (Saldaña, 2021). These types of codes can come through as thought, feeling, or action (Saldaña, 2021). Examples of values codes within this study include: *advantage: ability to re-watch video lessons* and *video lessons are helpful in learning computer programs*.

Saldaña (2021) describes emotion coding as "the emotions recalled and/or experienced by the participant, or inferred by the researcher about the participant" (p.160). Acknowledging emotions contributes to a comprehensive understanding of the participant's perspectives. One of the advantages of using qualitative analysis is the exploration of nuanced details concerning phenomena like emotions, thoughts, and feelings (Strauss & Corbin, 1998). Examples of emotion codes within this study include: *student had confidence in using the program in the future* and *student surprised by amount of learning*.

The last classification of codes used was magnitude. Magnitude coding is a supplemental classification added to existing classified codes to signify frequency, strength, or importance (Saldaña, 2021). Using code frequency can provide a valuable gauge of the significance of a specific code (Elliott, 2018). If it is shared by many participants, it may be worth more consideration. It was used in this study to demonstrate codes that had a strong presence within the data. Examples of magnitude codes within this study include: *video lessons provide ability to re-watch* and *likes self-paced*. While these codes also carry a classification of process or value, they were significant in the data and therefore were classified as a magnitude code.

Cycle Two: Categories

A secondary cycle was used to analyze and interpret the initial codes into categories. Condensing empirical materials into manageable conceptual categories is beneficial for comprehension (Tracy, 2020). “Categories aggregate individual codes that are related analytically or conceptually” (Lester et al., 2020, p.101). In the second cycle, I conducted three rounds of analyzation to develop appropriate categories. Saldaña (2021) describes the process of categorization as searching for patterns within codes to group them together based on similarities and sharing something in common. Those rounds are detailed in the next sections.

Round One

In the first round I assigned numbers to each code, reviewed each code, and sorted each code into categories. A number was designated to each code so that I could easily go back and see where the code originated from within the data transcription. The codes were also assigned a color so that I could easily find which interview or open-survey question the data came from. Then I printed out the list of codes and cut each code out on a slip of paper.

Each code was reviewed and laid out on a table in a grouping manner. This exercise is called tabletop categories (Saldaña, 2021; Tracy, 2020). Each code was analyzed to find meaning and then grouped with other codes that representing similar meanings. I would find like codes and combine them to start a category (see Figure 4.4 below). These groups were laid out across the table. This method allows the researcher to have a physical task of moving codes around in order to get an understanding of organizational concepts within the data (Saldaña, 2021). In this first round, a total of

sixteen categories were distilled. See Table 4.5 for the list of categories and the number of codes for each. Then each category with the group of respective codes was listed in an Excel spreadsheet in order to keep digital organization.

Figure 4.4
Manual Categories

Table 4.5
Categories- Round One

Category	Number of Codes
Advantages	53
Student Preferences of Video Lesson	26
Disadvantages	25
Description of Self and Others	18
Teacher-made vs YouTube Video Lessons	18
Preferred Video Lesson Length	17
Student-Student Interactions	14
Characteristics of the In-Class Flip	13
Suggestions	12
Finishing Projects	9

Premiere Pro Description	8
Teacher-Student Interactions	7
Pause Rewind Rewatch Frequency	6
Increased Content Knowledge	5
Video Lessons to Learn Computer Programs	4
Positive Experience	3

Round Two

In the second round of cycle two, I gathered all of the cut-out codes together and started the process again from the beginning. A second round was conducted in an effort to find alternative relationships between the codes. Tracy (2020) describes how combining the codes in new and different ways could help answer other questions or find additional significance within the data. Each code was regrouped together with different codes to see if other categories could be found. During the first round of categorization I took notes of possible categories that could be compiled and these were used in round two. It is possible to produce multiple meanings for a set of data and there are numerous perspectives for examining and deciphering the codes (Adu, 2019).

The second round of grouping produced seven categories. These categories and the corresponding number of codes are listed in Table 4.6 below. I was able to merge nine codes with others, as they represented an equivalent meaning. One code, *being too busy with afterschool activities*, was left out because it did not fit in with any other categories. The categories from round two were also added to an Excel spreadsheet for digital organization.

Table 4.6
Categories- Round Two

Category	Number of Codes

Interaction With Others	44
Video Lesson Preferences	44
Comparing Video Lessons to In-class Demos	43
Pacing	37
Ability to Use Program	28
Control Over Video Lessons	22
Overall Experience with In-class Flip	8

Round Three

In round three of cycle two, I reviewed the categories from both round one and round two to identify categories that should have been kept and to see if any new categories needed to be developed. I transitioned from analyzing individual cases within the codes to a more expansive interpretation, resulting in the emergence of a final set of categories from the data. It was essential for me to grasp the interconnections among the codes, which gave rise to both relationships and distinctions encapsulated within the categories (Lester et al., 2020). A total of nineteen categories were compiled. I consulted with my dissertation chair, where he suggested taking a closer look at some of the smaller categories and splitting them up into other categories, where it made sense, and could give other categories more depth.

I was able to split and merge the codes from the following categories into other categories: Learning Independently, Video Lessons to Learn Computer Programs, Positive Experiences, and Challenges with Video Lessons. Six of the previously established categories from round one and two were kept, while seven were newly developed or reworded from the previous rounds. A list of the final thirteen categories and the number of corresponding codes is listed in Table 4.7 below. These categories,

with their corresponding codes were added to an Excel spreadsheet for digital organization. These categories will be used in the next cycle to establish themes.

Table 4.7
Categories- Round Three

Category	Number of Codes
Preference of Video Lessons Over In-class Demos	40
Pacing	29
Teacher-Student Interactions	23
Suggestions	23
Preferred Video Lesson Length	18
How Students Use Video Lessons	17
Student-Teacher Interactions	17
Efficacy	17
Premiere Pro Descriptions	15
Teacher-made Video Lesson Description	11
Preference of In-class Demos Over Video Lessons	11
Re-watch	8
YouTube Video Lesson Description	7

Cycle Three: Themes and Assertions

In the third cycle I examined the thirteen categories, grouped them into major themes, and then created assertions from those themes. Guest et al. (2012) describe thematic analysis as examining commonalities, differences, and relationships. Creating themes is a researcher's way to interpret the categories and identify patterns that go beyond simply distilling the data, but rather attempts to explain and synthesize the data (Tracy, 2020). In this cycle, three rounds were conducted: theme creation, themes refinement, and assertions of themes. The next sections detail each round.

Round One- Creating Themes

In round one, I followed Saldaña's (2021) "theming the data: categorically" approach, which is an inductive, open-ended method of supplying comprehensive descriptions of the patterns identified and developed. The categories were reviewed, as a list of possible themes were recorded. These included phrases such as *students' feelings and beliefs*, *preference of video lessons*, and *video lesson characteristics*. I continued to read through the categories to find relationships and attempt to synthesize the data. Three themes emerged: student preferences, student experiences, and video lesson descriptions.

Round Two- Refining Themes

I discussed the emerged themes with my dissertation chair to get feedback and suggestions. My dissertation chair recommended thinking about themes and assertions simultaneously. He advised that an evaluation of themes in light of statements that could be made about them. The themes needed to be in a format that would allow these statements. I reviewed the themes and refined them into a final set of three. The themes and their corresponding categories are listed in Table 4.8 below.

Table 4.8
Themes

Theme	Categories
Student preferences of the in-class flip method	• Preference for in-class demos over video lessons • Preference of video lessons over in-class demos • Preferred video length • Suggestions
Student experiences within the in-class flip method	• Efficacy • How students use video lessons • Premiere Pro description

Student descriptions of video lessons within the in-class flip method	• Student-student interaction • Teacher-student interaction • Pacing • Re-watch • Teacher-made video lesson description • YouTube video lesson description

Round Three- Asserting Themes

In the final round of cycle three, I developed assertions about the themes. An assertion is a propositional generalization in which the researcher makes an overview of understandings and interpretations of the data while adding in their own personal experiences (Stake, 1995, as cited in Creswell & Creswell, 2018, p.125). It's a concise encapsulation of the key meanings extracted and converted into a statement based on the categories and codes that represent it. Nolen and Talbert (2011) describe how there are certain set of values that must be in place in order for a study to hold credibility with the reader, these include: transparency of data collection, transparency of analysis, and a reflexive approach to making assertions. I took into consideration my own position, biases, and perspectives when creating these assertions. The first draft of assertions and their respective themes are listed in Table 4.9 below.

Table 4.9
Assertions- First Draft

Theme	Assertion
Student preferences of the in-class flip method	Students preferred the in-class flip approach for learning computer programs, particularly when video lessons were concise (around five minutes), featured simple steps, and allowed for teacher assistance, while acknowledging that the traditional classroom model may be more advantageous when dealing with advanced content.

Student experiences within the in-class flip method	Students found the in-class flip to be a beneficial experience as it enabled independent learning, fostering their confidence in using Premiere Pro, with the flexibility to work at their preferred pace, rewind and re-watch video lessons, collaborate with peers, and receive personalized support from the teacher.
Student descriptions of video lessons within the in-class flip method	Students describe the self-paced nature of video lessons, along with the ability to re-watch the videos, which allows them to manage their free time after completing projects, while also noting that teacher-made videos have straightforward grading-aligned content, but find YouTube videos more suitable for in-depth and intricate instructions.

I conferenced with my dissertation chair after the first draft of assertions was constructed. My dissertation chair recommended simplifying the statements so that an outside reader could easily comprehend them. This method was consistent with qualitative analysis up to this point, using an iterative process that involves writing and rewriting and continuing to revisit the data (Creswell & Creswell, 2018; Tracy, 2020). After reviewing the first draft, I was able to condense and reword the assertions into a final set (see Table 4.10 below).

Table 4.10
Assertions- Final

Theme	Assertion
Student preferences of the in-class flip method	Students preferred the in-class flip approach for learning computer programs, particularly when video lessons were concise, featured simple steps, and allowed for teacher assistance, while acknowledging that the traditional classroom model may be more advantageous when dealing with advanced content.

Student experiences within the in-class flip method	Students found the in-class flip to be a beneficial experience as it enabled independent learning, fostering their confidence in using Premiere Pro, with the flexibility to work at their preferred pace, rewind and re-watch video lessons, and receive support from their teacher and peers.
Student descriptions of video lessons within the in-class flip method	Students put an emphasis on the usefulness of the self-paced nature of the video lessons, along with their ability to re-watch the videos whenever and as often as they would like. They also described how teacher-made videos included content that was more closely aligned to the grading expectations, but found the YouTube videos more suitable for advanced skills.

Qualitative Themes

The three themes from above are used to address research question two, *What are the students' experiences with the modified flipped classroom in a Multimedia course at Jefferson High School?* These themes helped to develop rich, thick descriptions from the participants perceptions (Creswell, 2014; Tracy, 2020), as emphasized in the interviews and open-note survey questions. These descriptions help to understand the true meaning behind the data (Leeds-Hurwitz, 2019).

Descriptions of each theme included connection to the literature, examples of specific codes and categories that arose from the data, and quotes from the students which help to develop the codes and categories. These helped support the findings of themes and provided credibility through triangulation (Creswell, 2014; Efron & Ravid, 2019; McAteer, 2013; Mertler, 2020; Tracy, 2020). Pseudonyms are used to protect the privacy of the students (Creswell & Creswell, 2018).

Insights into Theme 1

Theme 1: Student preferences of the in-class flip method

Theme one described how students favored the in-class flip method for acquiring computer programming skills, especially when instructional videos were brief, outlined straightforward steps, and permitted teacher guidance. However, they recognized that the conventional classroom approach might be more beneficial when tackling complex content. The students expressed that they liked the video lessons especially for learning Premiere Pro, gave suggestions based on their preferences for things such as video length, but also recognized that video lessons may not be helpful for all subjects.

The first theme consisted of four categories: 1) preferences of video lessons over in-class demos, 2) preferred video length, 3) suggestions, and 4) preferences for in-class demos over video lessons. In this section, specific codes and quotes from the transcript and open-ended survey responses are used to relate to the theme, as well as connections made to the literature.

Preferences of video lessons over in-class demos. The title of this category was a reoccurring code for all of the students. Some students specifically stated that they preferred the video lessons over a traditional in-class demonstration. This is consistent with Guy and Marquis (2016), Say and Yıldırım (2020), and Sergis et al. (2018). In addition, others were more precise stating that the video lessons were better for learning computer programs. When asked about her overall experience using the video lessons in comparison with the in-class demonstrations, Ava responded, "… very helpful, positive. I think in general… I like it a lot more." Noah said, "The video lessons are a good step in

the right direction in allowing students a lot of autonomy." When asked specifically if he preferred the video lessons over a traditional in-class demonstration Grayson responded, "Yeah, I think I do."

One of the explanations of preferring the video lessons over the traditional model was the students lack of confidence with typical lectures. Mia explained how she felt the modified flip classroom added to her course experience, "…for me personally, it helps because I'm really bad at lectures and stuff, so sometimes the videos have been beneficial".

Learning computer programs requires step-by-step instructions, examples, and visual aids (Cong et al., 2019; Fransson et al., 2019; Ulloa, 1980). Ava commented about liking the video lessons more than the in-class demonstrations, "Yeah, I did. Especially since we're working with computer stuff, it's a lot easier." When asked about how he felt he learned computer programs the best, Noah responded, "I have found that video instructions are generally best for most cases." In an open survey response, a student stated, "I think it is better for a class like this because everything we do in this class is on a computer so it's easier to learn how to do it on the computer … But I think for a class like math for example it's hard to learn the content through a YouTube video in my opinion." Grayson responded with something similar, "For Premiere Pro it's pretty helpful, but for other classes it's not fun." In an open response question from the survey, another student also had input about video lessons specifically for this program and being able to see an example, "I feel that video lessons for learning Adobe Premiere Pro are better learning for me because I learn better when I see someone else do it first".

Some of the students felt that an advantage of the in-class video lessons was that they did not have to wait for me to stop and help other students like they did with a traditional in-class demo. Enfield (2013) found that one significant challenge in instructing software programs arises when students lack comprehension of the program's applications. In such instances, the teacher is compelled to interrupt demonstrations, navigate the classroom, and assist struggling students, leaving others waiting. Mia explained, “I can go back and go back over things if I miss something. With lectures, you can’t really do that without asking”. Liam confirmed the biggest advantage of the video lessons for him, “…being able to work at your own pace and learn stuff on your own. Just like if we were with the whole class, you might have to stop and help one person, but if we’re all alone we can do what we need to do.”

Video length. All students in the study indicated that they preferred video lessons that were short. The precise length ranged from very short at two minutes to 10-15 at the longest. Other studies also recommended short videos (Akçayıra & Akçayıra, 2018; Schmidt & Ralph, 2016). These are consistent with the feedback from the students in this study.

Noah was very particular when commenting about why a shorter video was more helpful, “…five minute long video is enough to generally have a good overview of the concept and yet it’s not so much where if you’re trying to find a specific part you’d get lost…and it’s not always easy when the videos are seven to nine minutes…it’s not always easy to find a certain thing that you’re looking for…so five minutes generally gives enough information, but not too much where you get lost.” Lo (2018) suggests staying around the six-minute mark for video lessons in a flipped learning approach.

The survey question *What is your preferred duration (length of time) of video lessons?* generated two frequent codes: *preferred length: 10-15 mins* and *preferred length: 10 mins max*.

Suggestions. The most common code in this category was *no suggestions for future classes.* However, there were other suggestions made such as keeping the videos simple, to keep the check for understanding questions at the end of the videos, and to give thorough explanations of the instructions and where things are located within the program.

Many of the students indicated that they liked the current setup of the video lessons and that they did not have any suggestions. The students were satisfied overall with the flipped learning approach, similar to findings from other research (Aidoo et al., 2022; Fulton, 2012; Lo & Hew, 2017).

Ava: I don't know if I have any, I don't think I have any suggestions to be honest…it seemed pretty good.

Grayson: I don't think…it's pretty good as it is.

Mia: No, not that I can think of.

Noah: I don't honestly have too much to add.

When asked about suggestions to make it a better experience for future multimedia courses, Dominic commented about keeping it simple, "I like how the videos were short and simple… [so keep that]." This was consistent with the others in the group

that did not have any specific suggestions since this was not something that he thought should be changed, but wanted to keep this feature.

At the end of each video lesson, there was one multiple choice question for the students to answer to check for their understanding of the content, as recommended by Isaias (2018), Lo (2018), Moreno et al (2020), Roehling (2018), and Ronnebaum (2018). The questions at the end of the video lessons were something that Ava eventually suggested keeping after first stating that she did not have any suggestions, she recalled the helpfulness of the questions, "I liked that there [were] questions on the videos…[be]cause sometimes I tend to zone out while I'm watching it and I don't realize I'm actually supposed to be comprehending it, so it's helpful." This is also something that was not a change to the current setup of the modified flipped classroom, but something that she felt should be kept.

Liam made the suggestion, "…just try to explain everything as thoroughly as possible…the instructions or where stuff's located [on Adobe]." He was referring to specific buttons, panels, and effects within Premiere Pro and how it could be confusing to find these things if not detailed enough in the video lessons.

Preference for in-class demos over video lessons. This category emerged from a combination of codes which included: *prefers in-class demo for specific tasks* or *in-class demos are best for learning more complex concepts, disadvantage: video lessons can be difficult to understand content, possible disadvantage: student may have preference for traditional model,* and *do not like video lessons* or *prefers in-class demos.*

A few students felt that the traditional model would be better for specific tasks. Mia was disappointed that she didn't understand a question on the certification test that was not covered in any of the video lessons. When asked if there were certain things that she felt would be better for me to show with an in-class demo instead of a video lesson, she responded, "Probably…because there's one thing that we haven't covered that's come up multiple times on the certification test…that'd be a good thing to do demonstration wise because I don't think a video would be beneficial because then you can do a step-by-step kind of thing and I just do it with you." Noah also agreed that specific tasks, in particular more intricate tasks, would be better suited for in-class demos. He stated, "…things dealing with more complex topics, especially ones that go into a lot of menus and tabs and workspaces and things that require opening up a lot of files and just general things on the screen…would generally be better to have somebody present in that moment that can work with you individually." This was a generalized comment, since we did not have video lessons that required a lot of menus, tabs, workspaces, or files.

Noah elaborated on other disadvantages of the in-class flip. He commented that the video lessons could be confusing. He also disclosed his dislike for having to wait until the video was complete to ask me questions. Similarly, he was frustrated if he had to wait to ask me for help if his classmates did not know the answer. He explained, "It can also be a bit confusing, especially because one a thing that peers may not know… it can be a bit time consuming and can stall important progress on a project because of having to wait on [the teacher]." While he rarely asked me questions, he did provide a lot of help to his peers around him. Another student felt somewhat similar in regards to asking me

questions. In an open response survey question he stated, “Video may be accessible in more places, but traditional is more personal in the sense that we can ask questions.” He was referring to being able to ask questions right away, where he may have to wait for me to finish helping someone else before I could get to him.

Another set of codes that came about involved possible disadvantages. These were things that the students felt could be a potential issue, but not something that they experienced themselves. Ava points out that some students may need to see the in-class demonstration. She explained, “I think maybe for some kids they like to have that up on the board, but for me I think it was better to have it on the computer.” Mia also recognized a possible disadvantage, that students are not used to video lessons. She stated, “But I feel like for some kids it’s harder just because they are so used to lectures and things.” Then she goes on to say that she did not have any personal disadvantages. This thinking is consistent with previous research, in which students had a negative perception of the flipped model because of their lack of experience with it (Thai et al., 2020).

Some students still preferred the traditional model over flipped learning, as seen in previous studies (Dong et al., 2021; Findlay-Thompson & Mombourquette, 2014; Lo & Hew, 2017). The open response section of the survey generated some negative views about the modified flipped classroom. One student explained that he did not care for the video lessons, but he also recognized that they were helpful when working outside of the classroom, “I don’t like them because it might be hard to find things in the videos, but having them to be reminded what to do, like if you’re working after school.” Grayson also responded that he did not prefer any specific type of video lesson because he

preferred in-class demos. However, during the interview, he said that he preferred the in-class flipped method over in-class demos.

My assertion about theme one was that students preferred the in-class flip approach for learning computer programs, particularly when video lessons were concise, featured simple steps, and allowed for teacher assistance, while acknowledging that the traditional classroom model may be more advantageous when dealing with advanced content.

Insights into Theme 2

Theme 2: Student experiences within the in-class flip method

Theme two described how students discovered that the in-class flip was a valuable experience, promoting self-directed learning and boosting their self-efficacy in using Premiere Pro. The approach allowed them the ability to progress at their own pace, revisit video lessons, and seek assistance from others.

The second theme consisted of five categories: 1) how students use video lessons, 2) efficacy, 3) teacher-student interaction, 4) student-student interaction, and 5) Premiere Pro descriptions. In this segment, explicit codes and quotations extracted from the transcript, along with insights from open-ended survey responses, were employed to draw connections to the overarching theme, while also referencing relevant points from the existing literature.

How students use video lessons. This category arose from codes such as *pause, rewind, rewatch: often (x6), video lesson allowing the student to work in segments,* and *video lessons helpful if working from home (x3).* This section describes how students

liked being able to stop and go back within the video lessons as they worked on their projects and had the flexibility of working on their own time.

Consistent with previous research, students in this study appreciated the ability to pause, rewind, and revisit the material as necessary (Cukurbasi & Kiyici, 2018; Fulton, 2012; Lo & Hew, 2017). A large majority of responses, besides two, from open ended survey question referenced that they used the pause, rewind, and rewatch functions often or as needed. Noah described his experience with using these features, "if I needed to go back and watch how something was done again, I could very well do that easily…And it helped if I was stuck on a thing that needed to be resolved…that I could resolve it easily by watching the video." Later in the interview he confirmed how he could pause the video mid-way, work on his project, then continue watching, working in segments. Dominic explained how the in-class videos added to his course experience with, "it gave me the opportunity to go back and see how they were doing what I was trying to do and how I could go add it to what I was trying to do…it refreshens my mind."

As in previous research, students liked that they could review the video lessons when they wished to revisit and experience the content again if needed (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018). Grayson used the video lessons in a similar way, "I like it a lot because you can go back you can have it on, just listening to it while you're working. Or if you don't understand something, you can go back to the video and rewind it and watch it a couple times so you understand what it is and then you can go try it…" He also pointed out later that the rewatch feature helped when he did not understand something, so that he did not have to keep asking me for because he could see what he did wrong and figure it out on his own.

Ava agreed that the rewatch feature was one of the biggest advantages, “being able to go back, that’s really helpful.”

An advantage of flipped learning is the flexibility of the student to watch the video lessons on their own time (Akçayıra & Akçayıra, 2018; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018; Tugun et al., 2017). Students in this study, also found this to be an advantage. When asked how they felt about video lessons compared to the traditional method, one student commented in the open response survey that “having them to be reminded what to do, like if you’re working from home.” Students that may have misssed a class had the opportunity to watch the video lessons at home, a benefit that was also found in previous research (Bergmann & Sams, 2012; Schmidt & Ralph, 2016; Vereş & Muntean, 2021). This was helpful if they needed more time or if they preferred to work from home.

Efficacy. Self-efficacy is the students’ confidence in being able to produce an intended result effectively, and in this study, it was their assurance in their ability to produce videos using Adobe Premiere Pro. Within this category the codes that most stood out were: *significantly increased content knowledge (x5), learning independently (x4),* and *student had positive self-efficacy with using the program.*

Students reported having more confidence in the course content, as reported by other research (Tugun e al., 2017). Ava described how well she had learned the program, “I [have] definitely grown a lot like knowledge wise with Premiere Pro and video editing overall.” Grayson also admitted that he had learned a lot, “It was really frustrating in the beginning just [be]cause it was something very different, but now it’s pretty easy, it’s

pretty fun." Liam commented about being surprised by how well he had learned the program, "I've learned quite a bit that I didn't think I would know."

Prior research described how flipped learning enabled students to assume greater responsibility and ownership of their learning (Ishak, 2020; Kerr, 2020; Lopes & Soares, 2018), this was consistent with students in this study. Dominic explained that, "with the modified flipped classroom…it's kind of like we're more independent." Ava described her experience with learning new material and working on projects on her own, "It's helpful to be able to just, this is your deadline, you know, figure out what you need to do." She was referring to getting the instructions and a deadline, and using the resources to work independently on the projects. Students had more confidence in their ability to learn independently, as seen in previous research (Boateng, 2022). When asked about interacting with others Liam described, "I think it's more like individual work. It's not as much interacting with others cause… you're at your own pace. So as you work on stuff and learn on your own, you're not really interacting as much with everyone else." Liam liked to work independently on projects and did not interact with others much. He only interacted with me when he needed more clarification about a task. He mentioned later in the interview that learning on his own was one of the biggest advantages of the modified flipped classroom.

Flipped learning promoted self-efficacy with learning new technology, as disclosed by Enfield (2013) along with students in this study. Mia explained how she felt about her learning and thought she could use the program outside of class, "I feel pretty good. I feel like I could take it off into the world and do things with it." Students felt confidence in the tasks and activities, similar to other studies (Ishak et al., 2020; Sergis et

al., 2018). Noah described how he "learned the program pretty well" and commented about an advantage of the modified flipped classroom as, "it's a lot easier to understand things as well as the fact that student can generally have more autonomy."

Teacher-student interaction. Previous research showed that students had positive interactions with teachers in the flipped model (Cukurbasi & Kiyici, 2018; Hultén & Larsson, 2018). These positive interactions were also found in this study. They liked that I was able to give immediate feedback as they asked questions during the video lessons and that they could work autonomously while I walked around observing and offering guidance as needed.

In the flipped model, the teacher was available to offer prompt feedback to students as they worked (Isaias, 2018; Kerr, 2020; Lo 2018; Vereş & Muntean, 2021). I provided this immediate feedback to students in our course. Gonzalez (2014) reported that teachers could address questions in real-time as they arose, similar to my role within this model. Ava explained my role within this model, "I always see you walking around or you'll be at your desk, and it's pretty easy to come up and just ask [questions]." Liam also felt comfortable asking questions when he needed to, "it was real easy to ask you for anything."

In the flipped model, the primary responsibility of the teacher is to serve as a mentor rather than being the sole provider of information (Bergmann & Sams, 2012, Vereş & Muntean, 2021). My role as the teacher within this model, was to assist them when needed, but to let them be self-directed as much as possible. As mentioned in the previous section, Grayson felt that the work was mostly independent where he would just watch the video lesson and do the work. The video lesson acted as the provider of

information, and I would guide him when he needed assistance, which was not that often. Dominic had similar feelings of independence, as was also mentioned in the prior section. However, I had to assist him more often because he needed more clarification and reassurance that he was completing the tasks correctly. Noah called it, “a lot more laissez-faire in the interactions.” He went on to say that, “the teacher isn’t always overhead and attempting to make this into a traditional sort of lecture where they’re really the only ones who are divulging information.”

The in-class flip enabled me to observe the students as they watched the video lessons, as seen in previous reports (Gonzalez, 2014; Güven Demir & Öksüz, 2022). Noah recalled, “if you need the teacher then the teacher’s always there.” I was able to walk around and observe students work, checking for understanding of the students as they worked on their own.

Student-student interaction. Within the flipped model, the students are able to learn cooperatively with their peers (Kerr, 2020; Lo, 2018; Vereş & Muntean, 2021). Some of the key takeaways from the interviews within this study were the students had more time to interact with each other, they felt supported by their peers, and the student-student interactions were helpful.

Students had more interaction with their peers than with a traditional classroom model, similar to previous studies (Aidoo et al., 2022; Hultén & Larsson, 2018). The setup of the in-class flip promoted the ability of students to work collaboratively because they were not waiting on me to finish lecturing in order to be able to work together. When asked about these interactions, Dominic explained, “…towards our classmates, it

gave us more time to interact with them." He took advantage of the ability to work with others and stood out as one that helped his peers very often.

Students liked being able to work with their peers as part of an instructional strategy within the flipped model, an advantage also seen by Chen et al. (2015). When asked about the interactions and support from her peers, Mia commented, "…most people I've talked to are pretty nice…for the most part it's been pretty helpful." Ava also commented about the positive interactions with others, "I think overall you've been very nice and positive and I could say the same for my classmates. I usually only talk to the people around me because obviously we have to be at our computers, but overall I would say positive."

Within this model, the students were able to collaboratively formulate or discuss the intended meaning behind the learning (Leo & Puzio, 2016; Vereș & Muntean, 2021). This is prevalent in this study as well. Noah described how sometimes I was not available to answer questions, so having peers was helpful, "I often find that classmates are willing to help you." He went on to comment about how having those peers would help him to be able to complete the tasks in a timelier manner, "student-student interaction does help in everybody's pace and speeding things up." He said that having student help was one of the biggest advantages of the in-class flip and that he preferred to ask the students' help first when possible.

Grayson and Liam both felt support from the classroom when they needed help, but neither had to ask other students for assistance very often. They worked independently for the most part and helped others around them when needed. Grayson recalled, "…I had one or two people ask for help…So then I [gave] them a little bit of

help.” These two students felt the majority of their help came from me rather than peers, but were willing to help others. However, most students perceived an enhanced level of interaction among their peers (Ishak et al., 2020).

Premiere Pro description. There were two main ideas that were present in this category. The first is that Premiere Pro is a complex and robust program. The second is that the skills from learning this program can be transferred into other areas outside of the classroom.

Adobe Premiere Pro is a video editing software used for creating professional videos (Adobe, 2020a). The students recognized that it was a complex and robust editing tool. Mia explained that it was, “a little bit more in depth” than the other computer programs that she had learned previously. Grayson described his experience with the program, “it was really frustrating in the beginning just [be]cause it was something very different.” Noah characterized Premiere Pro as, “it is a program meant for professionals. Thus, is it pretty complex in a lot of its operations.”

The skills and concepts of learning video editing in Premiere Pro can be used in other areas of life besides in the Multimedia classroom. Ava and Mia explained how Premiere Pro can be used outside of class. The codes that emerged from their interviews were *skills learned in class can be used outside* and *using video editing skills in Premiere Pro and in other areas outside of class.* This was mentioned in the Efficacy section when Mia commented that “I could take it off into the world and do things with it.” Ava explained that she had some basic video editing skills, but did not know Premiere Pro, “I hadn’t even heard of it before this class.” She went on to explain how she had learned a

lot considering she had never used it before and felt she could use some of the concepts universally.

My assertion about theme two was that students found the in-class flip to be a beneficial experience as it enabled independent learning, fostered their confidence in using Premiere Pro, and provided the flexibility to work at their preferred pace, rewind and re-watch video lessons, and receive support from their teacher and peers.

Insights into Theme 3

Theme 3: Student descriptions of the video lessons within the in-class flip method

In theme three, students highlighted the flexibility of self-paced video lessons and emphasized an option to review the content multiple times. They acknowledged that the teacher-created videos offered clear content aligned with assessments, but expressed a preference for YouTube videos when seeking more detailed and complex instructions.

The third theme consisted of four categories: 1) pacing, 2) re-watch, 3) teacher-made video lesson description, and 4) YouTube video lesson description. In this section, particular codes and excerpts from the transcript, along with responses from open-ended surveys, are employed to tie into the overarching theme. Additionally, references to relevant literature are incorporated.

Pacing. All students that were interviewed indicated that they liked that the structure of the class was self-paced. This category arose from codes such as *in-class flip is self-paced (x3), advantage: self-paced (x4), getting free time when finished with projects (x2),* and *self-paced giving student control over their project.*

One of the biggest advantages that was expressed was the pacing of the video lessons in the in-class flip. “I think it was easier for me to learn [be]cause I got to work at my own pace”, Liam proclaimed. The multimedia video lessons accommodated learner variability, as suggested by ISTE (2017).

Students worked at different rates and had varying cognitive processing speeds, which is similar to findings from previous research (Braaten & Willoughby, 2014; Cepeda et al., 2013). Liam shared, “I think it’s easier for everyone just to be more successful because not everyone might learn something as quickly.” He also recognized that when everyone is forced to work at the same pace, it keeps some students from being able to work as quickly as they want to, “…if we were with the whole class, you might have to stop and help one person, but if we’re all alone we can do what we need to do.”

The flipped model was suitable for accommodating students who learned at different paces, as seen with studies by Abeysekera and Dawson (2015) and Bergmann and Sams (2012) or who had diverse learning abilities, as reported by Kerr (2020). When asked how she felt about everyone working at their own pace on projects, Ava responded, “That’s something that I really appreciate in any classroom environment because that’s kind of always something I struggle with in different classes, so I liked it a lot.” She continued with, “Sometimes I’ll be below or I’ll be working and ahead…but I don’t always meet the same pace as other kids. So it’s helpful to be able to just, this is your deadline, figure out what you need to do”. She struggled with some concepts and needed more time, then with others she was able to pick them up fairly quickly and start the projects sooner. She also mentioned that she enjoyed working ahead and having free time when finished. Grayson also recognized the advantage of the class being self-paced and

enjoyed having free time at the end of projects if he finished quicker than his peers, “I can usually get the project done within the first couple of days of it being announced, I kind of just chill for the rest of the day. But I think it’s nice to have it like self-paced.” He also expressed that he liked not being restricted by the pace of other students.

The video lessons within the in-class flip allowed the students to work at a rate that suited their needs. This was especially helpful to students who did not need the extra time. Students who faced challenges could take additional time, while those progressing well could proceed to work on their projects, comparable to other research (Braddock, 2020). Noah liked that he was able to work ahead when he could, “I can focus on something and get things done, I end up concentrating and finishing projects at a must faster rate or I end up focusing on them more than I would in a traditionally paced model because I can go faster…I generally have classmates that will get behind and I can help them if they need to get on track. And so it generally kind of helps everybody work at the pace that is comfortable for them.”

Students had the ability to manage the time they spent on their projects (Serçemeli et al., 2018). This was also found to be true within this study. Mia commented, “…you have choice of topic”. She liked that everyone could work on what they needed to each day and it did not have to be the same for everyone, depending on each person’s pace and what they chose to start with. She also said, “…you can definitely find your own pace and get stuff done as you feel you need to. You get more of a steady flow with things.” The self-paced nature of the in-class flip was one of the advantages that she mentioned in the interview. Noah also enjoyed being able to have more control over how he worked on

his projects. He said, “I just feel that it overall benefits in a way that helps people work at their own pace and allow for more autonomy for the individual.”

Students in this study also conveyed that they had the flexibility to watch or listen to the videos at their convenience, which is consistent with other studies (Ishak, 2020; Sigurðardóttir & Heijstra, 2020). When asked how he felt about being able to work at his own pace on projects, Dominic replied, “I feel like it gives everyone the comfortability to complete their project how they want it to look because they have the time.”

Re-watch. Another major advantage of the in-class flip, mentioned by the students in this study, was the ability to re-watch the video lessons. This category was developed from the codes: *video lesson providing the ability to re-watch (x13)*, *advantage: ability to re-watch video lesson (x4)*, and *ability to re-watch acting as a refresher of content and tasks.*

A major advantage that was found within this study, is similar to findings from previous studies, in which the students appreciated the ability to pause, rewind, and revisit the content as necessary, even multiple times if required (Cukurbasi & Kiyici, 2018; Fulton, 2012; Lo & Hew, 2017). When asked about the advantages of the modified flipped classroom, Ava responded, “definitely being able to go back…that’s really helpful…and being able to go back again.” Mia expressed that one of the best advantages for her was also being able to re-watch. She said, “I can go back over things if I miss something.” Noah discussed how the modified flipped class added to his course experience, “if I needed to go back and watch how something was done, again, I could very well do that easily.”

Students had the option to rewatch and review the content whenever they needed to revisit and reinforce their understanding again, as seen in prior research (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018). Ava mentioned, “I think it was overall really helpful because I could go back and just like be able to look if I was confused, and sometimes I have trouble concentrating so if I can go back it just helps me a lot.” Dominic was asked how the modified flipped classroom added to his course experience and he replied, “I think it gave me the opportunity to go back and to see how they were doing what I was trying to do and how I could go add it to what I was trying to do.” He was explaining how he used the re-watch capabilities of the video lessons when he was not sure about a task and needed to see the steps again. Grayson felt similar in that he could see a task a few times and try it until he grasped it, “…if you don't understand something, you can go back to the video and rewind it and watch it a couple times so you understand what it is and then you can go try it a couple times till you know what it is.” Behind the self-paced nature of the class, Grayson said the second biggest advantage was being able to go back and re-watch the lessons.

Students could choose to view the video lessons at their own convenience. Other research reported this as well (Akçayıra & Akçayıra, 2018; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018; Tugun et al., 2017). Noah explained how he used the video lessons and was able to pause when he needed to and then resume on his own accord, which he felt was different than what others may have done, “Cause the way that I do it, I don't wait until the end of the video to then go back and work with it and put all those things into the program. I will usually listen to it, pause it, and then work from a fixed set of points where I would use everything. So I would get halfway through the

video and then I would like stop and do everything up to that point and then continue in those segments." Grayson expressed the convenience of watching the videos in class because he had other commitments outside of class, "I enjoy doing it like in class. When I go home, I already have enough stuff to do, so I don't like watching the videos at home cause I've already have other stuff to worry about."

Teacher-made video lesson description. A majority of the video lessons were created by me. After looking back on survey answers and conducting two of the interviews, I decided to add a question about the preference for the video creator. This category was cultivated from codes such as *student prefers teacher-made video lessons (x2)*, *students like teacher-made videos to match expectations and grading*, *teacher-made videos are more relevant*, and *teacher-made videos are less complex.*

Some students had better involvement with the teacher-made videos because they knew they were tailor-made specifically for them, a benefit also experienced by Bergman and Sams (2015). Ava expressed that she liked the teacher-made videos for most content because it was closely aligned to the assessment of the project, "I feel like with certain things it's good to have you explain it since you're gonna be the one grading our assignment. And we know what you're expecting." Liam also expressed that he preferred the teacher-made videos because they pertained closely to the expectations for the projects, "the ones you created just cause it's more relevant to what we were working on."

Students recognized that pre-made videos that precisely align with their content, necessitated the creation of custom videos (Lo & Hew, 2017). When asked about his preference for video authors, Dominic responded, "The ones you created…because it was

how you wanted it." Like Ava, he recognized that the video lessons were aligned to the assessment.

Students felt that the teacher-made videos were simple. Noah commented, "the [videos] with the teacher were generally more concise and generally [easier] to understand." Dominic agreed, "you had the simpler way to do it".

YouTube video lesson description. The YouTube videos were preferred by some students when it involved more difficult or detailed tasks. The codes associated with this category include: *student prefers YouTube video lessons for specific effects*, *YouTube videos had higher production quality*, and *YouTube videos are better for more complex concepts*.

Content from various origins, not just the instructor, adds a refreshing dimension to the videos (Schmidt & Ralph, 2016). This was also discovered within this study. When asked if she preferred videos that were already made and found on YouTube or ones created by the teacher, Ava responded, "Well depending on what it is for like titles and stuff when you've got the YouTube one, that was really um, I like that a lot…The reveal title." She was referring to a specific type of title that had a unique style, where the video tutorial was obtained from YouTube.

The YouTube videos had high production quality than the teacher-made videos. Noah recalled, "I found that the ones on YouTube often had more production put into them." These video lessons were engaging to students, as suggested by other research (Akçayıra & Akçayıra, 2018; Isaias, 2018). Noah went on to explain, "when understanding a program, especially a program as complex as any Adobe program, you

really need an approach. And as a teacher that approach is more focused on the general aspects of how to use the program… that compared to somebody who has worked in the program for years… it's not just the person recording their screen talking over it." He is referring to the YouTube videos having elevated production attributes than the teacher-made video lessons, which included a screen recording of how to complete the task in the video editing program.

Students felt that the YouTube video lessons were more beneficial for more complicated tasks. Noah remarked, "for the most part I found that those were more helpful in understanding complex subjects." He also explained that many of the YouTube videos were created by professionals and that could be helpful, "…somebody who uses it professionally can also help in areas where teachers don't generally always have the most experience…"

My assertion about theme three was that the students put an emphasis on the usefulness of the self-paced nature of the video lessons, along with their ability to re-watch the videos whenever and as often as they would like. They also described how teacher-made videos included content that was more closely aligned to the grading expectations, but found the YouTube videos more suitable for advanced skills.

Chapter Summary

This chapter included the analysis and findings of quantitative and qualitative data sources. Quantitative data was collected from pre-posttests results, rubric scores from student artifacts, and descriptive statistics of the post-survey items. In addition, the qualitative data from open-ended post-survey questions and semi-structured interviews

provided findings and interpretations, including three cycles of coding and the assertion of themes. This collection of findings will be used in the next section to help answer the two research questions and to situate the findings within the literature from Chapter Two.

CHAPTER 5

DISCUSSION, IMPLICATIONS, AND LIMITATIONS

This section aimed to contextualize the results obtained from the quantitative and qualitative data sources within this study and existing literature. This mixed methods action research study involved creating, implementing, and evaluating the modified flipped classroom, known as the in-class flip, in a high school multimedia course. Student achievement was analyzed from pre-posttest and two student artifact scores while student perceptions were analyzed from a post-survey and six semi-structured interviews. The findings were situated with existing literature. This chapter summarized the conclusions drawn from this descriptive action research study by examining the responses to the research questions, discussing the implications of the findings, and recognizing the limitations of the study.

Discussion

The primary goal of this action research study was guided by two research questions: 1) How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School? And 2) What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School? The qualitative and quantitative data findings were combined to help answer each question along with support from existing literature. RQ1 used quantitative data from the pre-posttest Adobe certification test and the two student artifacts, Project #1 and

Project #2, to present the findings about student achievement. RQ2 used quantitative data from the post-survey responses, and qualitative data from the open-ended questions in the post-survey and semi-structured student interviews to convey discoveries about the student perceptions of the modified flipped classroom. This next section detailed these findings.

Research Question 1: How does a modified flipped classroom approach affect the students' ability to use Adobe Premiere Pro at Jefferson High School?

In this study, students demonstrated achievement for both the pre-posttest Adobe certification tests and two student artifacts. An explanation of how this student achievement was measured is detailed below.

I chose to try flipped learning in this study in order to combat some of the struggles that come with teaching computer programs, such as having to pause during in-class demonstrations to help students while other students had to wait, having to reteach the programs when students were absent, or needed to see the demonstration more than once. With a flipped classroom approach, lectures or in-class demonstrations are replaced with video lessons (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Serçemeli et al., 2018) and are completed at home, followed by discussion or activity in the classroom. After researching the flipped classroom method, I discovered that there are some disadvantages, such as students not being able to access the videos outside of the classroom (Aidoo et al, 2022; Say & Yıldırım, 2020; Sigurðardóttir & Heijstra, 2020) or not having adequate internet access (Kashada et al., 2017; Lo & Hew, 2017; Schmidt & Ralph, 2016, Serçemeli et al., 2018; Vereş & Muntean, 2021). Another common disadvantage was that students did not do the pre-class work to be properly prepared

(Akçayıra & Akçayıra, 2018; He et al., 2016; Low & Hew, 2018; Lopes & Soares, 2018). In order to avoid these disadvantages, I looked into modified versions of the flipped classroom, and this is where the in-class flip was discovered. The in-class flip allows the students to watch the video lessons in class rather than watching them at home. I felt that this would be a possible solution to the drawbacks of traditional in-class demonstrations and the challenges that come with the original version of the flipped classroom. Video lessons were offered to students to watch in the classroom in order to assist in learning how to use Adobe Premiere Pro.

Multiple studies have reported that the flipped classroom had a significantly more positive effect on student achievement when compared to a traditional classroom (Boateng et al., 2022; Cheng et al., 2018; Fulton, 2012; Guy & Marquis, 2016; Lopes & Soares, 2018; Say & Yıldırım, 2020). However, a true experiment was not conducted comparing the traditional classroom to a modified flipped classroom for this research study. In this study, a modified flipped classroom, more specifically an in-class flip, was implemented and student achievement was analyzed. Student achievement can be measured in many ways. Guskey (2012) explains how student achievement can be measure by attainment or improvement. Attainment is the level of achievement or what the student has accomplished at that point in time (Guskey, 2012). Improvement is the growth that the student has as the result of learning experiences (Guskey, 2012). The pre-test/posttest measured student achievement by examining improvement from one test to the next. The student artifacts measured student achievement by examining attainment. The results of this research study are similar to other studies in which the implementation

of a flipped learning approach had a significantly positive effect on student achievement (Akçayıra & Akçayıra, 2018; Kashada et al., 2017; Sergis et al., 2018).

For this study, the ability to use Adobe Premiere Pro was measured by using both the pre-test and posttest scores, as well as the scores on the two student artifacts. Standard four, Creating and Modifying Visual Elements, which includes seven sub standards (see Appendix A), were the elements that were assessed during this study. The pre-test/posttest scores came from the results of taking the Adobe certification test, that was part of the pathway to become an Adobe Certified Professional. Adobe asserts that certification confirms one's skills to establish credibility (Adobe Certified Professional, 2021a). The pre-test/posttest results showed that there was a significant increase in mean scores between the pre-test (M = 17.29, SD = 14.67) and posttest (M = 46.71, SD = 13.88). The significant increase was indicated by a 170.16% change in mean scores. The average difference between the two scores of each student was 29.42. Thirteen students' scores increased from the pre-test to the posttest and only one stayed the same. This data indicates that the in-class flip had a positive effect on the students' ability to use Adobe Premiere Pro.

The two student artifacts were assessed based on a proficiency score of 60%. The average score on Project #1 was 90.28% (M = 65, SD = 6.71). All fourteen students scored above a 60% and showed proficiency. The average score on Project #2 was 78.88% (M = 55.21, SD = 13.25). Eleven of the students scored above 60% and showed proficiency while three scored below 60% and were considered not proficient. It is important to note that two of the three students who did not reach proficiency had elements of the project that were missing completely, the scores were not representative

of incorrectly executing the standards. This could be due to the students' inability to complete the task or their unwillingness to complete the task, it cannot be conclusively determined.

The level of achievement in this study can be reasonably attributed to the course structure of the in-class flip, as this was the only type of instructional design used for the standards that were assessed on the certification test and student artifacts. There are many factors that can be attributed to the student achievement from implementing a modified flipped classroom. Studies have shown that flipped learning increases intrinsic motivation (Ishak, 2020; Sergis et al., 2018), which could have a positive effect on student achievement. In the post-survey *Q19 I am more motivated to learn the concepts of the course via the modified flipped classroom,* 43% strongly agreed or agreed (M = 2.50, SD = .86) and only 7% disagreed. Students generally have an overall satisfaction for flipped learning (Aidoo et al., 2022; Fulton, 2012; Lo & Hew, 2017), which can also add to student achievement. Flipped learning provides flexibility in accessing the video lesson (Akçayıra & Akçayıra, 2018; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018; Tugun et al., 2017), which could have helped improve student achievement. Grayson explained during the interview how he appreciated this flexibility, "I just feel that it overall benefits in a way that helps people work at their own pace and allow for more autonomy for the individual." Another possible contributor to a positive effect on student achievement within flipped learning is the autonomy of the students to take ownership of their learning (Ishak, 2020; Kerr, 2020; Lopes & Soares, 2018). Liam described how one of the biggest advantages of the modified flipped classroom was the ability to learn on his own. In his interview, he commented, "I think it's more like

individual work … you're at your own pace. So as you work on stuff and learn on your own". Engagement can play a role in active learning within this model (Jamaludin, & Osman, 2014) and these could have an effect on student achievement. On the post-survey, 50% of students agreed or strongly agreed (M = 2.50, SD = 1.09) with *Q15. Modified flipped classroom is more engaging than the traditional classroom.*, and only 21% disagreed. The flipped learning model allows students to pause, rewind, and rewatch video lessons (Cukurbasi & Kiyici, 2018; Fulton, 2012; Lo & Hew, 2017), and this control and self-pacing could assist in understanding of the content and therefore student achievement. Almost all of the students (12 of 14) commented in the open-ended survey responses that they used the pause, rewind, and rewatch capabilities often. During the interview, Grayson explained this benefit, "…if you don't understand something, you can go back to the video and rewind it and watch it a couple times so you understand what it is and then you can go try it…" Lastly, the flipped learning model promotes self-efficacy (Boateng et al., 2022; Ishak et al., 2020; Sergis et al., 2018; Tugun et al., 2017) which can also help foster student achievement. On the post-survey, *Q30. Modified flipped classroom learning has reduce my dependency on the instructor* had 50% of students that strongly agreed or agreed (M = 2.36, SD = .93), while only 7% disagreed. The student perceptions of these elements of a modified flipped classroom are discussed in further detail in the next section, helping to answer the second research question.

Research Question 2: What are the students' experiences with the modified flipped classroom in a multimedia course at Jefferson High School?

For this study, the goal of research question two was to evaluate students' perceptions of the modified flipped classroom. As noted in Chapter One, perceptions are

defined as gathering student reactions and feedback to gauge their beliefs and attitudes (Roach, 2014) towards using a modified flipped classroom approach. Further, attitudes are defined as feelings or emotions toward a factor (Merriam-Webster, 2022a), specifically the effectiveness and usefulness of the video lesson. In addition, the perceptions of the learning experience, including the beliefs of self-efficacy, interactions with others, and the overall satisfaction with the modified flipped classroom were assessed. The post-survey and student interviews were used to answer research question two. Below, the following topics are discussed and were used to help answer this research question: a) modified flipped classroom vs. traditional model, b) self-efficacy and independent learning, c) self-paced video lessons, d) support from others, and e) video lesson preferences.

Modified flipped classroom vs. traditional model. Overall, the students had a positive experience with the modified flipped classroom, as seen in other research studies (Aidoo et al., 2022; Fulton, 2012; Lo & Hew, 2017). Many preferred it to the traditional model, similar to Guy and Marquis (2016), Say and Yıldırım (2020), and Sergis et al. (2018). Additionally, the modified flipped classroom was specifically praised for the use of learning computer programs. Ava described her experience with the modified flipped classroom compared to a traditional model, "… very helpful, positive. I think in general… I like it a lot more." Mia also explained her preference because of her dislike of the traditional model "…for me personally, it helps because I'm really bad at lectures and stuff, so sometimes the videos have been beneficial". The survey question *Q3. I like watching the lesson on video* had a 57% response rate of agree or strongly agree, with only 14% responding disagree (M = 2.43, SD = .94). On the survey, 65% also believed

that the modified flipped classroom could be a suitable learning strategy (*Q12, M* =2.07, *SD* = .83).

The modified flipped classroom was especially liked in regards to learning a computer program. “I have found that video instructions are generally best for most cases”, responded Noah when asked about how he felt he learned computer programs the best. Many of the students noted that using video lessons to learn Premiere Pro was helpful, but that they did not necessarily like it for all subjects. One student commented during the open-ended questions on the post-survey, “I feel that video lessons for learning Adobe Premiere Pro are better learning for me because I learn better when I see someone else do it first”. Using video lessons to learn computer programs, but not for all subjects was also consistent with the post-survey statement *Q5. I wish more instructors used the modified flipped classroom model,* where only 50% agreed or strongly agreed, and over 21% disagreed (*M* = 2.64, *SD* = .93). This indicated that the modified flipped classroom may not be suitable for all subjects.

One of advantages that the students found with the modified flipped classroom was that they did not have to wait for the teacher to stop and help other students, like they did with a traditional in-class demo. This was consistent with the student preferences found from Enfield (2013). Liam described this advantage “…being able to work at your own pace and learn stuff on your own. Just like if we were with the whole class, you might have to stop and help one person, but if we’re all alone we can do what we need to do.” The self-paced nature of the modified flipped classroom was discussed in more detail later in this section.

While a majority of students preferred in the modified flipped classroom, findings from this study agreed with previous research that there were still some that liked the traditional model (Dong et al., 2021; Findlay-Thompson & Mombourquette, 2014; Lo & Hew, 2017). A few codes that arose from the qualitative data included *prefers in-class demo for specific tasks* or *in-class demos are best for learning more complex concepts.* Some students felt that the traditional model may be more helpful if the specific task to be done in Premiere Pro was more detailed or complicated. Noah explained this, "…things dealing with more complex topics, especially ones that go into a lot of menus and tabs and workspaces and things that require opening up a lot of files and just general things on the screen…would generally be better to have somebody present in that moment that can work with you individually." Students can get lost or confused if the steps are challenging or require many steps.

Self-efficacy and independent learning. Students in this study felt that they had increased content knowledge, learned independently, and had positive self-efficacy with using Premiere Pro after their experience with the modified flipped classroom. In response to the survey item *Q8. Learning foundational content through video lessons greatly enhances my understanding of material*, 71% agreed or strongly agreed, and none of the students disagreed (M = 2.07, SD = .73). Liam explained how he was surprised at how well he had learned the program, "I've learned quite a bit that I didn't think I would know." However, only 36% agreed (M = 2.57, SD = .85) with *Q27. I feel that mastering learning through modified flipped classroom improved my academic achievement.* Additionally, the pre-test/posttest and student artifacts showed an increase in student

achievement. This could point to students feeling like they had a better understanding of the content, but not fully mastered

This flipped model promoted independent learning, like in other studies (Ishak, 2020; Kerr, 2020; Lopes & Soares, 2018). Dominic explained this, "with the modified flipped classroom…it's kind of like we're more independent." Liam also described the independent learning within the modified flipped classroom, "I think it's more like individual work. It's not as much interacting with others cause… you're at your own pace. So as you work on stuff and learn on your own, you're not really interacting as much with everyone else." This is also consistent with the survey responses. On *Q4. I try to learn as much as possible while watching the videos,* 86% agreed or strongly agreed (M = 1.93, SD = .83). This showed that they recognized the need to learn the content independently with this type of model. Not only did the students gather that this model required independent learning, but they also recognized that they were responsible for their learning and tried their best to grasp the concepts on their own during the video lessons.

The students had positive self-efficacy in their ability to use Adobe Premiere Pro after completing the video lessons in the modified flipped classroom. Students felt confidence in the tasks and activities after using flipped learning, which is consistent with previous research (Ishak et al., 2020; Sergis et al., 2018). Mia elaborated on this in regards to using the program outside of class, "I feel pretty good. I feel like I could take it off into the world and do things with it." 57% agreed and none disagreed (M = 2.36, SD = .63) that they were more prepared to complete their projects after watching the video lessons (*Q2. With the modified flipped classroom model, I feel more prepared for my*

projects.). Only 7% disagreed with survey items *Q14. I felt prepared to complete course tasks in class after listening to the video content* (*M* = 2.43, *SD* = .85) and *Q29. I feel that mastering learning through modified flipped classroom improved my course understanding (M* = 2.43, *SD* = .94). The students believed in their own capability in using Adobe Premiere Pro.

Self-paced video lessons. A common category that arose in the qualitative data analyzation was the self-paced nature of the modified flipped classroom. Students recognized their ability to control their pacing as well as appreciated that within the course. Of the entire sample of students, only two did not mention self-pacing in either the open-ended survey questions or interviews. This was also one of the most mentioned advantages of the modified flipped classroom. As a reminder from Chapter 4, Liam expressed, "I think it was easier for me to learn [be]cause I got to work at my own pace". The survey item *Q22. I got the ability to self-pace my learning with a modified flipped course* had 71% of students that agreed or strongly agreed, with 7% that disagreed (*M* = 1.93, *SD* = 1.00). Ava also liked that the course structure was self-paced because she did not feel the pressure to always keep up with her classmates, "That's something that I really appreciate in any classroom environment because that's kind of always something I struggle with in different classes, so I liked it a lot… Sometimes I'll be below or I'll be working and ahead…but I don't always meet the same pace as other kids. So it's helpful to be able to just, this is your deadline, figure out what you need to do."

Self-pacing can be helpful when students learn at different rates. Research shows that students have varying cognitive processing speeds (Braaten & Willoughby, 2014; Cepeda et al., 2013) and flipped learning can help accommodate these students who learn

at diverse rates (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012). Therefore, the self-paced nature of the modified flipped classroom can be helpful to an array of students and their distinctive learning needs.

A useful element of self-pacing within the modified flipped classroom was the students' ability to pause, rewind, watch, and rewatch the video lesson as many times and as often as desired. Students in this study found value in the option to pause, rewind, and review the material as needed, much like prior research studies (Cukurbasi & Kiyici, 2018; Fulton, 2012; Lo & Hew, 2017). Noah explained how he used the ability to rewind and re-watch the lessons, "if I needed to go back and watch how something was done again, I could very well do that easily." Dominic also expressed his appreciation of being able to work at his own pace and how sometimes he just needed a refresher of how to do something in order to complete a task, "it gave me the opportunity to go back and see how they were doing what I was trying to do and how I could go add it to what I was trying to do…it refreshens my mind." This is consistent with other studies in which students appreciated the flexibility of being able to revisit video lessons at their convenience for a thorough review of the content when needed (Abeysekera & Dawson, 2015; Bergmann & Sams, 2012; Kerr, 2020; Serçemeli et al., 2018). 64% of students also agreed or strongly agreed (M = 2.21, SD = 1.05) with the survey item *Q6. I frequently pause or repeat parts of the videos in order to increase my understanding of the material*. This showed that the rewind and re-watch feature within the video lessons was helpful to the students' learning. Re-watching the video lessons was a common code from the qualitative data, *video lesson providing the ability to re-watch (x13).* Mia explained how she used the re-watch feature to help while she was working on a project, "I can go back

over things if I miss something." Grayson also liked the ability to go back and re-watch the lessons especially when the steps were more detailed, "…if you don't understand something, you can go back to the video and rewind it and watch it a couple times so you understand what it is and then you can go try it a couple times till you know what it is."

Support from others. Within flipped learning, interactions with and support from others can play a major role. In a study conducted by Hultén and Larsson (2018), teachers reported that students had enhanced interactions with other students and since they had already watched the lessons and were prepared, they also had higher caliber questions and discussion with teachers. In another study, the students expressed that they had more frequent interactions with their peers (Aidoo et al., 2022). Because the students were receiving the lesson through videos, my role was to walk around and monitor students working and provide assistance when needed. This freed up my time and gave me the opportunity to provide more immediate feedback as students worked independently or within groups, which was also reported in other research (Isaias, 2018; Kerr, 2020; Lo 2018; Vereş & Muntean, 2021).

Within the flipped learning model, students are encouraged to engage in collaborative learning with their classmates during in-class activities (Kerr, 2020; Lo, 2018; Vereş & Muntean, 2021). This cooperative education can be a crucial part of the learning process within the flipped classroom, as students have the freedom to learn together and to help each other. Dominic expressed how he felt there was sufficient opportunities to collaborate with his peers, "…towards our classmates, it gave us more time to interact with them." Cooperative learning not only gives students the opportunity to interact with one another, but can also be helpful if the students is struggling and the

teacher is busy helping another student. Noah also commented on how he was able to get assistance from his peers while working on the projects in the class, “I often find that classmates are willing to help you.” Higher academic achievement could be an effect of collaborative learning, consistent with Hsiung (2012).

In a flipped environment, there is increased opportunity for student-instructor interaction, as well as the ability to receive timely feedback (Fulton, 2012; Guy & Marquis, 2016; Lo & Hew, 2017; Vereş & Muntean, 2021). Within this study, students had positive interactions with me, which is consistent with Cukurbasi and Kiyici (2018) and Hultén and Larsson (2018). Ava noted that I was easily accessible during class and that she felt comfortable asking for assistance, “I always see you walking around or you’ll be at your desk, and it’s pretty easy to come up and just ask [questions].” When given the survey item *Q28. Modified flipped classroom did not limit my interaction with the instructor*, 57% agreed or strongly agreed and no one disagreed, with the other 43% reporting neutrality (M = 2.21, SD = .80). Noah explained how it was easy to get help from me when he needed it “if you need the teacher then the teacher’s always there.” The modified flipped classroom may also decrease the dependency of the student on the teacher. When the students were presented with survey item *Q30. Modified flipped classroom learning has reduced my dependency on the instructor*, 50% of students agreed, only 7% disagreed, and the others were neutral (M = 2.36, SD = .93).

However, not all of the students were completely satisfied with the interactions with others. While half of the students agreed that they had the opportunity to ask questions within the modified flipped classroom, 29% disagreed (*Q9. Modified flipped classroom gives me the opportunity to ask more questions inside the classroom, M =*

2.71, *SD* = 1.20). This showed that there were some students who may not have felt comfortable or felt like they had the time or opportunity to get assistance within the class structure. Reactions were also mixed when given survey item *Q20. Modified flipped classroom improved collaborative learning.* Of the 14 students, 43% agreed or strongly agreed, but 21% disagreed and 36% were neutral (*M* = 2.50, *SD* = 1.16). This mix could be due to the wording of the question, as it implies that the course structure improves collaborative learning, while the students may have felt that they were already proficient when it comes to working cooperatively. Also, some students did not like to work with others, and preferred to work on their own. Students may also not have understood the meaning of term *collaborative learning*. In a later survey item, *Q23. Modified flipped classroom gives me greater opportunities to communicate with other students*, 50% responded as agreed or strongly agreed, while only 7% disagreed (*M* = 2.29, *SD* = .99). These questions were similar, but showed differing results, which could point to the students' misunderstanding of the terms.

Video lesson preferences. Not surprisingly, the students' video lesson preferences that arose from the qualitative data were also all elements that have been discussed in previous studies as components of effective flipped classrooms, as outlined in Chapter Two. Video lesson sources, complexity of lessons, and length of videos are all detailed to help give insight about the students' experiences within the modified flipped classroom and to assist in answering RQ2.

The students were given two sources of video lessons, teacher-created and previously recorded YouTube videos. The students were asked their opinions about each and which they preferred. The main ideas that arose were that teacher-made videos were

closely aligned to assessments and that YouTube videos were better for more complex content.

During her interview, Ava described how she appreciated the teacher-made videos because she felt like they were tailor-made specifically for the projects that were assigned and gave clear expectations for what I wanted, “I feel like with certain things it's good to have you explain it since you're gonna be the one grading our assignment. And we know what you're expecting.” Dominic also recognized that the teacher-made videos were directly related to the assessments when he was asked about his preference of video creation, “The ones you created…because it was how you wanted it.” Bergman and Sams (2015) recommended videos created by the teacher because they felt that it gave the students more incentive to have buy-in for the work since they were custom made for them. These recommendations were consistent with the views of the students in this study. Liam expressed that he thought the teacher-made videos were more relevant to the content than the YouTube videos when asked which type he preferred, “the ones you created just cause it's more relevant to what we were working on.”

While the teacher-made videos helped the students to be prepared for exactly what was going to be assessed, they also recognized that the YouTube videos were helpful for more complex tasks. Noah commented on this during his interview, “when understanding a program, especially a program as complex as any Adobe program, you really need an approach. And as a teacher that approach is more focused on the general aspects of how to use the program… that compared to somebody who has worked in the program for years.” He points out later that many of the YouTube video tutorials were produced by professionals within the industry who have more experience and higher

production quality. However, he also commented that the teacher-made videos were less difficult to grasp, “the [videos] with the teacher were generally more concise and generally [easier] to understand.”

This idea of complexity of video lessons was found in multiple themes from the data. As was just mentioned above, the students felt that the teacher-made videos were better for less complex content, while the YouTube videos were helpful for content that required a lot of detail or many steps. Video lesson complexity was also mentioned with the length of the videos. Noah commented, “five minutes generally gives enough information, but not too much where you get lost.” Too much information at once can be overwhelming, so keeping the video lessons short helped to make it easier to follow. This also related to Mayer’s (2017) Multimedia Principle regarding segmenting, where it was more beneficial to learning if the lessons are in short, user-paced segments. During the interview, the students were asked to give suggestions for future classes. Dominic responded, “I like how the videos were short and simple… [so keep that].” As mentioned above, when comparing the modified flipped classroom to a traditional model, Noah explained during the interview that the modified flipped classroom was helpful for simpler tasks and content, but that having an in-class demonstration may be more helpful with more intricate steps, “…things dealing with more complex topics, especially ones that go into a lot of menus and tabs and workspaces and things that require opening up a lot of files and just general things on the screen…would generally be better to have somebody present in that moment that can work with you individually.” Students recognized that Premiere Pro was a complex and robust program. Mia explained how it was “a little bit more in depth” than other computer programs that she had used in the

past. Grayson agreed and even thought it was difficult to use at first, “it was really frustrating in the beginning just [be]cause it was something very different.” With Premiere Pro being more complicated than basic video editing programs, it was important to keep the video lessons simple and short, and the students recognized this and appreciated it.

Video length was a topic that was looked at during the post-survey and the interview. Overall, the ideal video lesson length was short. Noah explained his preferences during the interview, “…five-minute-long video is enough to generally have a good overview of the concept and yet it’s not so much where if you’re trying to find a specific part you’d get lost.” The post-survey had similar results, with most students preferring around a 10-minute maximum. The preference for short video lessons was consistent with other studies. A meta-analysis conducted by Akçayıra and Akçayıra (2018) discovered that there is an inverse correlation between the duration of videos and the percentage of videos that students watch. Schmidt and Ralph (2016) surveyed teachers about the flipped classroom and found that teachers felt that 10-15 minutes videos worked the best and made the recommendation to “use short precise videos to cover the material” (p.6). Lo (2018) recommends that the video lessons stay around six minutes, while Moreno et al. (2020) suggests breaking up any videos that are longer than six minutes. In this study, the video lessons ranged from 1:52 to 7:43, with an average of 4:29. I also created videos lessons that were broken up to accommodate these suggestions. Each of the projects that the students created artifacts for had multiple video lessons. Project #1 had five lessons and Project #2 had three lessons. Based on the data, the students appreciated the shorter videos within this study.

In summary, the students expressed that they had an overall positive experience with the modified flipped classroom. They made comparisons to the traditional model and expressed their opinions about when each would be appropriate. They recognized advantages, such as self-efficacy and the ability to self-pace. They also described their preferences for video lessons in relation to author, complexity, and length. In this next section, I describe the implications for myself and for others within the realm of education.

Implications

Action research, as a methodology, differs from traditional research by prioritizing the improvement of practice within a specific context (Mertler, 2020) over generalizability to broader populations. In educational settings, action research is often undertaken by teachers seeking to enhance their own instructional methods, classroom environments, and student outcomes (Mertler, 2020; Salkind, 2010). This form of systematic inquiry focuses on iterative cycles of planning, action, data collection, observation, and reflection. While the findings of action research may not be universally applicable, they hold significant value for the individuals directly involved, particularly teachers, who stand to benefit from enhanced pedagogical strategies and a deeper understanding of their practice. Furthermore, various stakeholders, including students, administrators, and the broader educational community, can derive insights from these studies to inform decision-making and improve learning outcomes. This section examines the following areas: 1) personal implications, 2) implications for practice, and 3) implications for future research.

Personal Implications

This study has granted me an experience that has provided me with personal growth as an educator and has enlightened my interest in research. I will discuss the following personal implications: 1) action research, 2) mixed methods research, and 3) the modified flipped classroom.

Action Research

This has been my first experience conducting a research study, and I am thankful I was introduced to action research as a method of inquiry. While various research methods can be helpful and provide needed information, action research was beneficial for an educator who wishes to improve their practice. The literature review allowed me to discover the reasoning behind prior research, how the theoretical frameworks can help develop an intervention, the potential advantages and disadvantages of implementing educational models, and suggestions on how to make an intervention successful. The literature review process helped me understand how to properly review prior research studies. Consequently, this study has provided me with the confidence to effectively conduct future literature reviews.

This study has taught me that having a well-planned out research design and intervention is crucial to not only action research, but also as a way to experience growth as an educator. Lesson planning is part of the everyday life of an educator, but using previous research and then tailoring that to my own content to drive the intervention gave an added benefit. Collecting my own data and analyzing it has helped me find what works and how I can improve my teaching. Before this study, I did not know how to

meticulously analyze data. Learning the data analyzation process was intricate with a high level of precision, thoroughness, and attention to detail that I will take with me into future research.

Lastly, the main objective of action research is to be able to figure out what worked and what did not and how to do it better next time. It helps to develop a call to action (McAteer, 2013; Mertler, 2020). It is almost like a never-ending cycle that allows researchers, and in this case, an educator to keep working on developing the best instructional design practice. With the end goal of helping to improve the situation of the participant (Greenwood & Levin, 2007; Stringer & Aragón, 2020), or this case, the student. As educators, we often use data to drive our practices. We attend professional development, usually in the form of sit and get environments, to help us decide which instructional design we will implement. This can provide an educator with a lot of tools and resources that they may not have come across on their own. However, being part of the process of discovery of a new instructional method, researching that method, and then planning it around my own content and students has taken the professional development to a new level. Conducting this study, planning out the design, collecting my own data, analyzing the data, and reflecting on the findings has been the most beneficial professional development of my career thus far.

Mixed Methods Research

When I came into this program, I considered myself a numbers person who only saw data in spreadsheets. The program exposed me to the idea of using not only quantitative data to help drive instructional practices, but also the importance of the qualitative data. Before this study I would have only looked at student achievement to see

if an instructional practice was effective. While this is helpful data to have, by only looking at it from a quantitative perspective, we are missing the human aspect of it. I realized that it mattered to me what my students' perceptions, attitudes, and beliefs were about the instructional methods that I implemented in our class. I wanted to know how they felt about it, their opinions, and their suggestions. Choosing a mixed methods research study helped to provide me with a plethora of information that I would not have had access to with only quantifiable data. Mixed methods research entails the collection of both qualitative and quantitative data, which are then integrated to yield insights that surpass the limitations of using either method in isolation (Creswell & Creswell, 2018; Mertler, 2020). I am thankful for the insights that the qualitative data provided in addition to the quantitative findings and how the two worked together to tell a story about my class.

Modified Flipped Classroom

Being in the education industry, new instructional strategies come out often. Many years ago, I witnessed another teacher within my school implement the flipped classroom model. I was intrigued, but could never figure out how that model would work for my classes. Teaching computer software can pose some obstacles when it comes to students who are unable to keep pace with the rest of class, need extra help, or if they are absent and miss instruction. I felt that the flipped classroom model could be a possible solution to these issues, but realized that there were also some disadvantages associated with the flipped model. For me, this mainly included the lack of technology (hardware, software, and internet access). I would have students that did not have access to the specific computer programs that we were using in class at home, most often because of

the cost of the program. Some did not have access to reliable internet or internet at all. Still, others had no computers within the home.

During my first semester within the Learning Design and Technology program I was tasked with discovering a problem of practice within my own context and reviewing various technology-based instructional design methods. I kept looking into the flipped classroom model to determine if it was something that I thought could be beneficial to my class. During my research, I found a modified version of the flipped model, called the in-class flip. This changed my whole perspective on how the flipped model could possibly be a solution to the problems that I was facing with teaching computer programs to high school students.

Within this study, I wanted to see if the advantages that the previous researchers had found with the flipped model, could transfer to my classroom, but also wanted to alleviate the disadvantages that came along with the flipped model by using a modified version. There was not another research study that I could copy, because this modified version had not been used on a Multimedia course before. However, I was able to incorporate the idea of the in-class flip by allowing the students to watch the video lesson in class, rather than requiring them to watch them at home. At first, I thought, will this be strange if the students are watching the video lessons while I am in the classroom, walking around monitoring. I was so used to giving in-class demonstrations at the front of the room, while the students followed along. I had to step past my comfort zone and allow them to take control of their own learning and trust the process.

I am proud of myself for trying this new instructional method. The study showed that there was increased student achievement and the students had a positive experience

with the modified flipped classroom. I did not include observations or a researcher's journal in my data collection methods. However, my lived experience, along with the data that was collected and analyzed has led me to conclude that the modified flipped classroom is a method that I will continue to implement within my future Multimedia courses, with some adjustments based on the findings. I no longer had to worry about having to take the time to re-teach students who missed class or needed to see the steps again because with the modified flipped classroom they had access to the video lessons and could watch and re-watch as many times as they needed. I also did not have to worry about losing students' interest when I had to stop in the middle of a demonstration to assist those students who could not keep pace. With the modified flipped classroom, the students could work at their own pace, pausing when they needed and revisiting steps. They could easily get my help and it did not take me away from the whole class, because the rest of the class was able to keep working independently when I was helping another student. I was able to walk around and monitor their progress as they worked, providing immediate feedback, rather than having to wait until after the in-class demonstration to assess how they were progressing. Many of our projects were week-long assignments where everyone was working at various paces. It used to be difficult to show them a task at the beginning of the week and expect that they would remember how to complete it days later. The video lessons helped to alleviate this obstacle by allowing them to watch only the lessons that pertained to that specific task when they were ready for it within their project.

While the students had an overall positive experience with this method, and the majority of students showed achievement, there were some negative perspectives that

should be noted. Many of the students did not feel like the modified flipped classroom would be helpful in other subject areas. Some felt that more complex tasks would be better to learn through an in-class demonstration rather than a video lesson. And lastly, there was not as much acknowledgement of collaborative learning by the students as I would have hoped for. Some students chose to work alone instead of taking advantage being able to learn from or with their peers. Others did not see an added value in the collaborative learning. There were a few that worked together and helped each other, but I was hoping for more cooperative work between them. This is something that I plan to encourage in future classes.

Implications for Practice

Multimedia education is becoming prevalent in the high school setting because school districts want to keep up with 21st century skill sets, particularly technology. More and more workplaces are wanting to hire technology savvy candidates, which trickles down to the school districts. While multimedia can be used in any type of classroom, there are classes dedicated strictly towards learning computer programs, such as audio, video, and image editing software. The technology used within these courses is changing every year as advancements are made with computer programs. There is a clear need not only for multimedia education, but for effective learning strategies within these courses.

Throughout the eight years of teaching multimedia before I conducted this study, I found that this class had challenges, mainly because of the wide array of students that would take the course. The course is open to all high school grade levels, so there are a mix of ages anywhere from 14-18 years old. The reasons why the students take the class can vary, from being highly interested in media creation to needing to fulfill an elective

credit and maybe even because the students heard it was a fun or easy class and they had friends who also signed up. This presents a classroom with a wide array of capabilities. When acquiring proficiency in computer programs, students require clear, sequential guidance, exemplars, visual aids, and user-friendly interfaces to achieve success (Cong et al., 2019; Fransson et al., 2019; Ulloa, 1980). Because of this need for step-by-step instructions and visual examples, it is not typically a class where students take notes during a lecture and then go work on an activity independently. They need to be shown how to use the programs. The method by which I was showing my classes how to use the computer programs involved me giving in-class demonstrations at the front of the room while the students followed along and copied what I was showing them at their own stations. This was the method that I had been taught during student teaching, the method by which teachers within my department were teaching, and the method by which many other educators were using that I encountered at conferences and on social media teacher groups, like Facebook. As mentioned in the previous section, the traditional model of giving in-class demonstrations presented various obstacles.

During my literature review, I discovered components of an effective flipped classroom, which I used to help design my intervention. The following are recommendations for implementing a modified flipped classroom, more specifically, the in-class flip in a Multimedia classroom:

1. Take time to plan out the intervention ahead of time. This includes having the entire course laid out before the implementation begins. Often times, teachers will adjust their instruction to fit the needs of their students as they go. This is still possible with a thorough design that is ready beforehand. I would suggest

having each project planned, with rubrics, timeline, and all of the video lessons pre-recorded or found from outside resources ahead of time.

2. Use a mix of teacher-made video lessons in addition to videos found on platforms like YouTube. When using pre-made videos, I would suggest that finding videos that are very closely related to the expectations for the project and that fit with the objectives. Over complicated videos with a lot of unneeded details can confuse the students and take away from what you truly want them to learn. Also, recognize that more intricate tasks may require an in-class demonstration instead of a video lesson. It is acceptable to use multiple forms of instruction.
3. Keep the video lessons short, around five minutes. Having multiple video lessons for each project can help cut the video lengths down and can also help to keep the lessons simple and focused on one skill at a time.
4. Explain the tasks and goals at the beginning of each class. Even though students will be working at different paces, it is a good idea to chunk larger assignments into smaller parts and give the students guidance on what goals they should try to reach by the end of each class period. This might help those students who struggle with a lot of autonomy.
5. Establish roles of the teacher and student at the beginning of the course. Explain that your role as a teacher is not to send them off to learn on their own, but to give them a safe space to ask questions as they go along and for you to monitor their progress and give feedback as they work rather than at the end during the grading process. Explain the importance of collaborative

learning throughout the course and encourage them to use each other for help and ideas. Even though it may not be a group project, they should feel comfortable working with their peers.

6. Have discussions with your students during the intervention to see what their perceptions are. This can allow you to adjust things or provide more support if needed. I also recommend getting feedback and suggestions from them at the end of the course that would help to make future courses more successful.

While this study only focuses on using the modified flipped classroom to learn Adobe Premiere Pro, I believe that this method could be used to learn various other computer software programs and online platforms within a Multimedia course.

Implications for Future Research

As mentioned before, the purpose of this study was not to offer generalizability, but rather to improve my own practice and to offer others within a similar context an opportunity to improve their own practice. However, there are areas in which future research could benefit not only those within the multimedia education environment, but possibly other disciplines. These implications for future research include gaps in the literature and further exploration gathered from my findings.

During the literature review there were subjects that I could not find any research to support or there were only a few studies to draw from, these include: 1) a flipped classroom within a high school multimedia course, 2) strategies for teaching or learning video editing software programs, and 3) the in-class flip. My search to find a study that was similar to mine came up short. There are numerous studies done using flipped

classrooms, but not in the same subject or age group specifically. I was able to find one study that used a flipped classroom in a multimedia course by Enfield (2013). However, the study was conducted using undergraduate students, not high school students. I was also able to find a course that focused on using the flipped model in a high school technology course by Johnson and Renner (2012). Unfortunately, the course was for computer applications and not video editing or multimedia. I was also unable to located other technology-based instructional strategies for teaching multimedia courses in my literature search. I believe that it would be beneficial to multimedia educators to have more research tailored to their course, and more specifically, with a flipped model.

In my literature search, I was unable to find a research study that focused on learning or teaching video editing software programs. I was able to find a study about teaching and learning computer programs by Ulloa (1980), but it was an older study and not specific to video editing software. I believe that multimedia education teachers would benefit from more research studies that focus on the teaching and learning of multimedia software, such as video editing programs. The strategies to teach or learn these types of software programs may give educators more insight to the most effective instructional design.

My literature search only produced four sources about the in-class flip. The first, by González (2014), who originally coined the term *in-class flip* and gave a description of how the model works. In 2018, Ramirez and Rodriquez used this model at a professional development conference for English Language Teachers (ELT). Braddock (2020) did a study using the in-class flip on elementary orchestra students. And Güven Demir and Öksüz (2022) conducted a research study on fourth grade science and social

studies students implementing the in-class flip. There is a lack of studies using the in-class flip. Based on the feedback from the students, not being confident that the modified flipped classroom would work in all subject areas, it would be beneficial to dive into this further with future research using the in-class flip in other high school courses. More specifically, future research in using the in-class flip for learning video editing software would be useful. My study was limited to only 14 students and did not offer a control group. Having a study that looks a larger population and adding the element of a control group could give more insights to the effectiveness and student perceptions of a modified flipped classroom. In the next section, I highlight more of the limitations of my research study.

The findings from this study also highlight areas in which more research would be beneficial. There was some resistance to the in-class flip, as mentioned by Noah when he was frustrated with having to wait until the end of the video lesson to ask questions or if his classmates did not know an answer to a question and he had to wait to ask me for help. Future research would benefit from diving more into this resistance and to ask more probing questions about these frustrations. Having a more experienced interviewer could be helpful in this future research.

Limitations

Every research study has a set of limitations that the researcher must recognize. Within this action research study, the following limitations will be discussed: 1) research design, 2) data findings, and 3) researcher bias.

As mentioned in the previous section, this study was limited in the number of participants and the design of the intervention. The findings of this study are only representative of 14 students who were in a high school multimedia course. A larger sample size can provide more accurate inferences (Creswell & Creswell, 2018). The size limitation is one of the reasons that this type of study cannot be generalizable. However, the goal of action research is not to be universally applicable, but to help the educator to improve their practice by incorporating change (Mertler, 2020). My goal is for other educators to be able to see the in-class flip as a possible instructional strategy within their own discipline and have the opportunity to view the results of my study to determine if implementation is right for them.

The number of interviews could present an additional limitation in the form of small sample size. All students could have been interviewed, but that could have been a burden not only for arranging and conducting the interview, but particularly in the data analyzation process. To help mitigate this potential limitation, I used purposeful representative sampling to gather a sample of students based on gender, race/ethnicity, and current class grade. The students interviewed consisted of four males and two females. One student was Black and five were White. There was one freshman, two sophomores, one junior, and two seniors. Two students were 15 years old, one was 16, one was 17, and two were 18.

Secondly, this action research study was not a true experimental study. In experimental research, the researcher has control over the variables within the study and has two sets of participants, those that receive the intervention and the control group who does not receive the intervention, then the two are compared (Mertler, 2020). While an

experimental design can help to determine if an intervention influenced a particular outcome (Creswell & Creswell, 2018), this action research study aimed to find not only if the modified flipped classroom could help student achievement in regards to using Adobe Premiere Pro, but also how the students felt about the instructional model. A true experiment alone, would not be able to answer both questions. Nor would it be practical in a classroom setting.

The next limitations are based on the design of the data collection and findings. Both interviews and pre-test posttest can pose issues. It is important to note that pretest-posttest design cannot demonstrate causality and there may be threats to internal validity because there could be other explanations for a change in pretest and posttest scores besides the intervention (Adams & Lawrence, 2019).

Interviews may cause a limitation in the collection of unbiased data. The presence of a researcher could influence or skew the responses given (Creswell & Creswell, 2018). During any interview, there is an asymmetric power dynamic where the power shifts from interviewer to interviewee (Anyan, 2013). “This is because the interviewer possesses the information about the study and the interviewee owns the knowledge and experience for the study” (Anyan, 2013, as cited in Karnieli-Miller, Strier, & Pessach, 2009, p.4). In this study, I as the teacher in the class, had a clear power dynamic over my student since I was responsible for the grading and held authority in our class. My students may have possessed some power at times during the interview since I was reliant on their cooperation and willingness to give their thoughts and opinions. I tried to alleviate this power dynamic as an educator by including this statement in the interview protocol: *Remember that you are not required to answer all of the questions. If there are*

any that you prefer not to answer, please just let me know. There are no right or wrong answers, just answer as accurately and honestly as possible. Your grade, nor my perception of you will be affected by your answers in any way. The consent form that the parents/guardians were required to sign included a statement about the parents' and students' ability to drop from the study at any time and that their grade would not be affected: *Taking part in this research study is voluntary. You are free not to take part, or to stop taking part at any time. If you withdraw from this study, the information you already have given to the study team will be kept private.* The assent form that the students were required to sign also had a similar statement and it addresses their grades as well: *You do not have to help with this study. Being in the study is not related to your regular class work and will not help or hurt your grades. You can also drop out of the study at any time, for any reason, and you will not be in any trouble and no one will be mad at you.*

Regarding the interviews, I believe that my inexperience as a researcher, especially as an interviewer poses a limitation as a researcher and in instrument. I would have liked to get more detailed information from the students. Some of the answers were very brief. If I would have had more experience giving interviews, I think that the interview protocol would have been better designed, as well as my ability to keep the students engaged in the conversation to get more information from them.

Lastly, it is important to recognize the biases by the researcher as a limitation. While triangulation was used in this study and can help to reduce researcher biases (Tracy, 2020), it is nearly impossible to eliminate all biases. Every researcher has biases. Qualitative research presents opportunities in which the researchers biases may come

through. Saldaña (2021) explains how the qualitative process can be personal to the researcher:

> For the individual researcher, assigning symbolic meanings (i.e. codes) to data is an act of personal signature. And since we each most likely perceive the social world differently, we will therefore experience it differently, interpret it differently, document it differently, code it differently, analyze it differently, and write about it differently. (p.22).

To help prevent this type of bias, an iterative process of coding was conducted where multiple rounds and cycles took place over the course of numerous weeks. Multiple consultations with my dissertation chair took place during this process, as a form of peer debriefing.

Quantitative research also presents incidents of bias. Bias during grading can be problematic since grading student artifacts can be subjective. I attempted to alleviate this bias by using rubrics to grade the student artifacts and by having a second content specialist evaluate the projects to provide additional validity. However, another limitation in relation to grading is that I was not able to show true inter-rater reliability because the additional content specialist did not provide their own scores for each project which could have been compared to the scores that I gave.

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APPENDIX A

ADOBE EXAM GUIDE STANDARDS

(Adobe Certified Professional, 2021b)

4.1 Use core tools and features to edit audio and video.

a. Assemble a video sequence using a variety of tools and panels.

i. Key Panels: Timeline, Source Monitor, Program Monitor

ii. Key Concepts: setting In and Out points to determine an edit; splitting, inserting, overwriting, lifting, and extracting clips

4.2 Add and animate titles and modify title properties.

a. Add superimposed text and shapes in a sequence.

i. Key Concepts: Type tools: point text, paragraph text; Create shapes with the Pen, Rectangle, and Ellipse tools; Use the Essentials Graphics panel to browse and select relevant templates

b. Use appropriate controls to modify text and graphics appearance.

i. Key Text Controls: font, size, alignment, kerning, tracking, leading, horizontal and vertical scale, etc.

ii. Key Appearance Controls: fill, shadow, stroke, background

4.3 Trim footage for use in sequences.

a. Resize clips using a variety of tools.

i. Key Terms: adjusting scale, aspect ratio, or frame size; letterboxing; adjusting for mixed aspect ratios; using vertically shot video from phones; etc.

b. Trim and refine clips using various methods.

i. Key Tools: Rolling Edit tool, Ripple Edit tool, Rate Stretch tool

4.4 Transform digital media within a project.

a. Modify clip settings.

i. Key Concepts: labeling, renaming, setting poster frame, changing clip speed, creating a freeze frame

b. Adjust the audio of a video clip.

i. Key Concepts: audio gain and channel remapping

4.5 Use effects to modify video in a sequence.

a. Use basic auto-correction methods and tools.

i. Key Concepts: Know how to use the Basic Correction, Creative and Vignette controls of the Lumetri color panel

b. Apply effects presets.

i. Key Tools: effects, transitions, presets

c. Apply effects presets on multiple clips.

i. Key Concepts: creating and adjusting the length of the adjustment layer, nesting

d. Composite video clips using tracks.

i. Key Concepts: keying (luma/chroma), opacity, masking, mattes, alpha channel, picture-in-picture

4.6 Use keyframes to control video properties over time.

a. Modify effect settings.

i. Key Concepts: adding and adjusting keyframes, adjusting effect properties

b. Apply and adjust video motion effects.

i. Key Concepts: adjusting clip settings over time by using key frames

ii. Key Effects: motion, opacity, other visual effects

4.7 Manage audio in a video sequence.

a. Apply effects presets.

i. Key Tools: effects, transitions

b. Add audio to a sequence.

i. Key Concepts: synchronizing, linking, replacing, merging clips, mono and stereo tracks

c. Adjust audio on the timeline or using the Effect Controls panel.

i. Key Concepts: adding audio transitions and effects, adding, removing, and adjusting keyframes

APPENDIX B

PROJECT 1 RUBRIC

PROJECT 1	Distinguished- 8	Proficient- 6	Emerging- 4	Needs Work- 0-2
Add and assemble eight video clips using a split screen effect (4.1.a.)	Three video clips are added and assembled properly with a split screen	1-3 clips are missing or an error is made in splitting	4-7 clips are missing or errors are made in splitting	Clips are not split
Use the rectangle tool (4.1.b.)	Rectangle tool is used properly to separate all three clips	1 error was made in using the rectangle tool	2 errors were made when using the rectangle tool	3 or more errors were made when using the rectangle tool or it was not used at all
Adjust clip size and position (4.3.a.)	Adjust videos to an appropriate clip size and position for the split screen	1-3 clips does not have the proper size or position	4-7 clips do not have the proper size or position	All clips are not the proper size or position
Add text, change size, text alignment (4.2.b.)	Text is added to each section at an appropriate size and alignment	Text, size, or alignment has errors in one section	Text, size, or alignment is missing from one section	Text, size, or alignment is missing from two sections
Modify text with font choice, color, stroke, and background (4.2.b.)	A different font type and fill is used for each section, one section has a stroke and one has a background for text	One element of text modification is missing	Two elements of text modification are missing	Three or more elements of text modification are missing or text modification is not used at all
Change clip speed (4.4.a.)	Clip speed is properly adjusted for one video	Clip speed is adjusted but only slightly apparent		Clip speed is not changed
Trim clips (4.3)	Excess footage is trimmed and all videos and audio are the same length	Excess footage is trimmed, but videos or audio end at slightly different times		Excess footage is not trimmed
Use Lumetri color (4.5.a.)	Lumetri color is used to make one video black/white and adjust the colors in another video.	One element of Lumetri color is missing		Both elements of Lumetri color are missing

APPENDIX C

PROJECT 2 RUBRIC

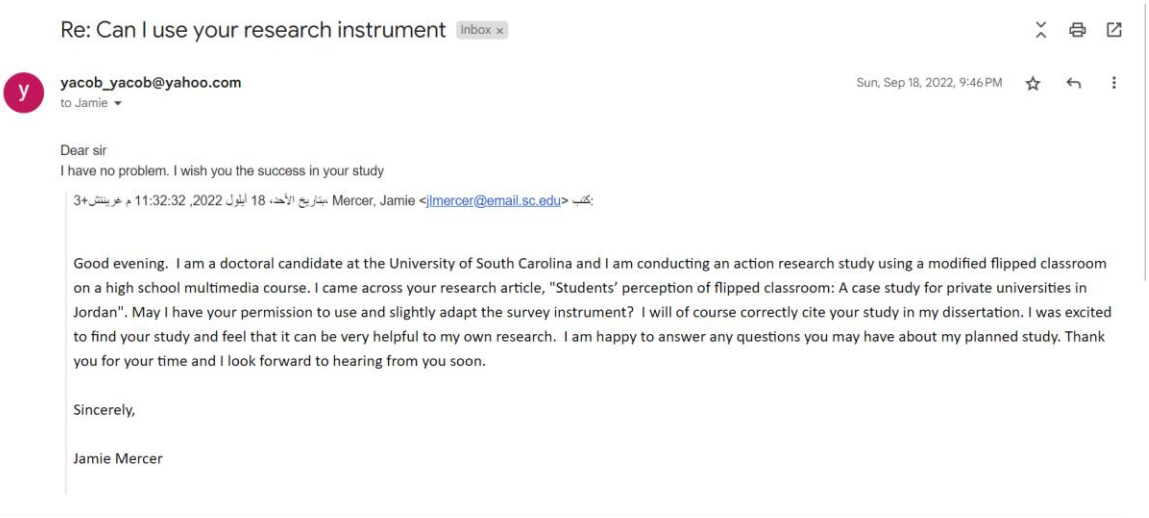
PROJECT 2	**Distinguished- 8**	**Proficient- 6**	**Emerging- 4**	**Needs Work- 0-2**
Add multiple clips (4.1.a)	At least 15 clips are added in correct order	10-14 clips are added in correct order	5-9 clips are added or clips are out of order	Four or less clips are added or no clips are in order
Add text (4.2.b)	Text is added to all video clips	Text is missing from 2-4 video clips	Text is missing from 5-7 video clips	Text is missing from 8 or more clips are not used at all
Apply effects presets and adjust length (4.5.b.; 4.5.c.)	Apply preset transitions to all clips and adjust to a proper length	Transitions are missing from 1-3 clips	Transitions are missing from 4-6 clips	Transitions are missing from 7 or more clips are not used at all
Add motion effects (4.6.b)	A motion effect is added and adjusted properly	A motion effect is added, but not adjusted properly		A motion effect is not added
Add audio to a sequence (4.7.b)	Background music is added to three or more clips	Background music is missing from one clip	Background music is missing from two clips	Background music is not used
Adjust audio (4.7.c)	Volume is adjusted to an appropriate level in all clips	Volume is not adjusted properly in one clip	Volume is not adjust properly in two clips	Volume is not adjusted properly in three or more clips
Add voice-over (4.7.b)	Voice over is added to at least two clips	Voice over is missing from one clip		Voice over is not used at all

APPENDIX D

CORRESPONDENCE BETWEEN THE CREATOR OF THE ORIGINAL SURVEY, YOUSEF ALJARAIDEH.

Student's perceptions of the flipped classroom:

A case studies for private universities in Jordan.



Re: Can I use your research instrument Inbox ×

yacob_yacob@yahoo.com Sun, Sep 18, 2022, 9:46 PM
to Jamie

Dear sir
I have no problem. I wish you the success in your study

3+ م عريننش 11:32:32 ,2022 أيلول 18 ،بتاريخ الأحد Mercer, Jamie <jlmercer@email.sc.edu> كتب:

Good evening. I am a doctoral candidate at the University of South Carolina and I am conducting an action research study using a modified flipped classroom on a high school multimedia course. I came across your research article, "Students' perception of flipped classroom: A case study for private universities in Jordan". May I have your permission to use and slightly adapt the survey instrument? I will of course correctly cite your study in my dissertation. I was excited to find your study and feel that it can be very helpful to my own research. I am happy to answer any questions you may have about my planned study. Thank you for your time and I look forward to hearing from you soon.

Sincerely,

Jamie Mercer

APPENDIX E

POST-SURVEY

Aljaraideh, Y. (2019)	**Adaptation for this study**
1. I feel that watching videos and taking notes contribute efficiently to my learning.	1. Same
2. With flipped classroom model, I feel more prepared for my exam.	2. With *the modified* flipped classroom model, I feel more prepared for my projects.
3. I like watching the lessons on video.	3. Same
4. I try to learn as much as possible while watching the videos.	4. Same
5. I wish more instructors use the flipped or inverted classroom model	5. I wish more instructors used the *modified* flipped classroom model.
6. I frequently pause or repeat parts of the videos in order to increase my understanding of the material.	6. Same
7. Flipped classroom encourages me to practice critical and creative thinking.	7. *Modified* flipped classroom encourages me to practice critical and creative thinking.
8. Learning foundational content prior to class greatly enhances my understanding of material.	8. Learning foundational content *through video lessons* greatly enhances my understanding of material.
9. Flipped classroom gives me the opportunity to ask more questions inside the classroom.	9. *Modified* flipped classroom gives me the opportunity to ask more questions inside the classroom.
10. Flipped classroom attracts my attention to learning and teaching process.	10. *Modified* flipped classroom attracts my attention to the learning process.
11. With flipped classroom, we have to do more work out of the classroom.	11. With *modified* flipped classroom, we have to do more work *on our own.*
12. Flipped classroom can be a suitable teaching strategy.	12. *Modified* flipped classroom can be a suitable *learning* strategy.

13. Flipped classroom can improve interest in exploring topics.	13. *Modified* flipped classroom can improve interest in exploring topics.
14. I felt prepared to complete course tasks in class after listening to the video content.	14. Same
15. Flipped classroom is more engaging than the traditional classroom.	15. *Modified* flipped classroom is more engaging than the traditional classroom.
16. Flipped classroom gives me less class time to practice the concepts of course.	16. *Modified* flipped classroom gives me less class time to practice the concepts of the course.
17. Flipped classroom reduces the effort to understand the basic knowledge of the subject matter.	17. *Modified* flipped classroom reduces the effort to understand the basic knowledge of the subject matter.
18. Flipped classroom, along with delivery of content outside class and problem solving in class, is an instructional method appropriate for my specialization.	18. *Modified* flipped classroom, along with delivery of content *through video lessons* and problem solving in class, is an instructional method appropriate for this class.
19. I am more motivated to learn the concepts of course via the flipped classroom.	19. I am more motivated to learn the concepts of the course via the *modified* flipped classroom.
20. Flipped classroom improved collaborative learning.	20. *Modified* flipped classroom improved collaborative learning.
21. Flipped classroom can improve interest in class.	21. *Modified* flipped classroom can improve interest in class.
22. I got the ability to self-pace my learning with flipped courses.	22. I got the ability to self-pace my learning with *modified* flipped courses.
23. Flipped classroom gives me greater opportunities to communicate with other students.	23. *Modified* flipped classroom gives me greater opportunities to communicate with other students.
24. I believe that I am able to learn material with flipped classroom instruction better than with traditional lecture-based instruction.	24. I believe that I am able to learn material with *modified* flipped classroom instruction better than with traditional *in-class demonstrations*.
25. I would recommend flipped classroom to a friend.	25. I would recommend *modified* flipped classroom to a friend.
26. Flipped classroom matches my learning style.	26. *Modified* flipped classroom matches my learning style.
27. I feel that mastering learning through flipped classroom	27. I feel that mastering learning through *modified* flipped

improved my academic achievement.	classroom improved my academic achievement.
28. Flipped courses did not limit my interaction with instructors.	28. *Modified* flipped classroom did not limit my interaction with *the instructor*.
29. I feel that mastering learning through flipped classroom improved my course understanding.	29. I feel that mastering learning through *modified* flipped classroom improved my course understanding.
30. Flipped classroom learning has reduced my dependency on the instructor.	30. *Modified* flipped classroom learning has reduced my dependency on the instructor.

Open-ended Questions:

1. What types of video lessons do you prefer?
2. How often do you use the pause, rewind, or rewatch functions of the video lessons?
3. What is your preferred duration (length of time) of video lesson?
4. How do you feel about video lessons compared to traditional in-class demonstrations for learning Adobe Premiere Pro?
5. What suggestions do you have for the teacher in regards to the video lessons for future classes?

APPENDIX F

INTERVIEW PROTOCOL

Introduction

Good morning. The purpose of this interview is to contribute to the data collection component of the action research study that was discussed at the beginning of the semester. I will be recording the interview and will be taking notes as we go along. In this study, I have implemented a modified flipped classroom model called the in-class flip where students watch video lessons in class rather than having in-class demonstrations in order to learn how to operate Adobe Premiere Pro. You and your guardians have already signed consent to participate in this study, but you have the right to not participate at any time. The study, along with this interview are completely voluntary. If you are willing to proceed with this interview, can I please get you to state your first and last name and that you voluntarily consent to participate in this interview. _____

Thank you. Remember that you are not required to answer all of the questions. If there are any that you prefer not to answer, please just let me know. There are no right or wrong answers, just answer as accurately and honestly as possible. Your grade nor my perception of you will not be affected by your answers in any way. The following interview questions are about your own perceptions of the modified flipped classroom that we have been using within this course. Are you ready to get started? _____

(*1) How do you feel that the modified flipped classroom added to your course experience?*

(2) How do you feel about your overall experience with using video lessons in the modified flipped classroom compared to in-class demonstrations in a traditional classroom model?

(3) Explain your interactions with the teacher and with classmates in the modified flipped classroom?

(4) How do you feel about everyone working at their own pace on projects?

(5) How do you feel about how well you have learned Adobe Premiere Pro?

(6) In your opinion, what are the advantages of the modified flipped classroom?

(7) In your opinion, what are the disadvantages of the modified flipped classroom?

(8) What suggestions would you offer to make this a better experience for future Multimedia courses?

Conclusion

Thank you for your time today. I appreciate your honest feedback and suggestions. You will have the opportunity to view the results of the study and give comments about the accuracy of the data collection through a process called member checking. Before we go, do you have any questions? _____ If any questions arise afterwards, please feel free to ask me in class or contact me via email at mrsjamiemercer@gmail.com.

APPENDIX G

CONSENT FORM

UNIVERSITY OF SOUTH CAROLINA
CONSENT TO BE A RESEARCH SUBJECT

A Modified Flipped Classroom:
Action Research Using an In-Class Flip to Measure Student Achievement and Perceptions Within a High School Multimedia Course

KEY INFORMATION ABOUT THIS RESEARCH STUDY:

Your child is invited to take part in a research study being done by Jamie Mercer. I am a doctoral candidate in the Department of Education at the University of South Carolina. The University of South Carolina, Department of Education is sponsoring this research study. The purpose of this study is to implement and evaluate the impact of a modified flipped classroom approach on students' ability to use Adobe Premiere Pro. You are being asked to allow your child to take part in this study because your child is enrolled in the Multimedia II course. This study is being done at Jefferson High School and will have approximately 20 subjects.

Below is a short summary of this study to help you decide if you want your child to be in this study. More details about this study are listed later in this form.

SUMMARY:

For this study, I will be using flipped learning in an approach called the in-class flip, where the students view the video lesson in the classroom and then move on to practice new content. The instructional model is a modification of the original flipped classroom approach.

PROCEDURES:

If you agree to be in this study, you will complete all of the same course projects that non-participants complete, such as a pretest-posttest and video projects. You will also complete a survey about your perceptions of the modified flipped classroom. Five students will be chosen to participate in an interview at the end of the study. The interviews will take approximates 5-10 minutes and will be audio recorded on the researcher's iPhone. I have included a table below that lists the expectations, timeline, and role of the students.

Expectations, Timeline, and Roles

	Phase 1 Pre-Intervention	Phase 2 Intervention	Phase 3 Post-Intervention
Expectations	• Participant identification • Consent and Assent forms • Pre-test	• Video lessons • Project rubrics • Posttest	• Survey • Interviews
Time Frame	• 1 week	• 6 weeks	• 1 week
Participants' Role	• Sign and return Assent form • Have guardian sign Consent form and return • Complete pre-test	• Watch video lessons • Produce videos • Complete posttest	• All participants complete online survey • 5 participants engage in interviews

DURATION:
Being in the study involves being part of everyday activities within the course. The study will last approximately eight weeks.

RISKS/DISCOMFORTS:
Loss of Confidentiality:
There is the risk that what you share or your name will not remain private. The study team will take many steps to keep what you share and your name private. Details about those steps are given later in this consent form.

BENEFITS:
Taking part in this study is not likely to benefit you. However, the finding from this study may help people know more about the use of a modified flipped classroom as an effective instructional model.

COSTS:
There will be no costs to you for being in this study.

PAYMENT TO PARTICIPANTS:
You will not be paid for being in this study.

CONFIDENTIALITY OF RECORDS:
Information obtained about you during this research may be published, but you will not be identified. Information that is obtained concerning this research that can be identified with you will remain confidential to the extent possible within State and Federal law. All records in Missouri and South Carolina are subject to subpoena by a court of law. The investigators associated with this study, the sponsor, and the Institutional Review Board will have access to identifying information. Aliases or pseudonyms will be used to protect the identity of participants. Study information will be securely stored in locked files and on password-protected computers.

VOLUNTARY PARTICIPATION:

Taking part in this research study is voluntary. You are free not to take part, or to stop taking part at any time. If you withdraw from this study, the information you already have given to

the study team will be kept private. If you wish to withdraw from the study, please call or email the main researcher who is listed on this form.

Concerns about your rights as a research subject are to be directed to, Lisa Johnson, Associate Director, Office of Research Compliance, University of South Carolina, 1600 Hampton Street, Suite 414D, Columbia, SC 29208, phone: (803) 777-6670 or email: LisaJ@mailbox.sc.edu.

I have been given a chance to ask questions about this research study and my questions have been answered. **If I have any more questions about my taking part in this study, or a study related injury, I am to contact Jamie Mercer at 636-541-4743 or email mrsjamiemercer@gmail.com**

I have been given a copy of this form for my own records. If you wish for your child to be in the study, you should sign below. Your child will have an attached assent form to sign as well.

- ☐ I agree to allow my child to take part in this study.
- ☐ I do not agree to allow my child to take part in this study.

Name of participant (child): _____

_____ _____

Signature of Participant's Guardian Date

APPENDIX H

ASSENT FORM

UNIVERSITY OF SOUTH CAROLINA

ASSENT TO BE A RESEARCH SUBJECT

A MODIFIED FLIPPED CLASSROOM:

ACTION RESEARCH USING AN IN-CLASS FLIP TO MEASURE STUDENT ACHIEVEMENT AND PERCEPTIONS WITHIN A HIGH SCHOOL MULTIMEDIA COURSE

If participants include those under 18 years of age: 1) The subject's parent or legal guardian will be present when the informed consent form is provided. 2) The subject will be able to participate only if the parent or legal guardian provides permission and the adolescent (age 13-17) provides his/her assent. 3) In statements below, the word "you" refers to your child or adolescent who is being asked to participate in the study.

I am a researcher from the University of South Carolina. I am working on a study about a modified flipped classroom and I would like your help. I am interested in learning more about if the modified flipped classroom increases your content knowledge of Adobe Premiere Pro and how you feel about the instructional model. Your parent/guardian has already said it is okay for you to be in the study, but it is up to you if you want to be in the study.

If you want to be in the study, you will be asked to do the following:

- Answer some written questions about how you feel about video lessons as an instructional model.
- Meet with me individually and talk about more details about your experience in the class. The talk will take about 5-10 minutes and will take place at the end of the study.

Any information you share with me will be private. No one except me will know what your answers to the questions were. The interviews will be audio recorded, but only I will listen to them.

You do not have to help with this study. Being in the study is not related to your regular class work and will not help or hurt your grades. You can also drop out of the study at any time, for any reason, and you will not be in any trouble and no one will be mad at you.

Please ask any questions you would like to about the study.

*For Minors 13-17 years of age:

My participation has been explained to me, and all my questions have been answered. I am willing to participate.

- ☐ I am willing to participate.
- ☐ I am not willing to participate.

_____	_____
Print Name of Minor	Age of Minor
_____	_____
Signature of Minor	Date

APPENDIX I

IRB LETTER

UNIVERSITY OF
SOUTH CAROLINA

OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
DECLARATION of NOT RESEARCH

Jamie Mercer
7001 Highway 94 South
St. Charles, MO 63303

Re: **Pro00125247**

Dear Mrs. Jamie Mercer:

This is to certify that research study entitled ***A MODIFIED FLIPPED CLASSROOM: ACTION RESEARCH USING AN IN-CLASS FLIP TO MEASURE STUDENT ACHIEVEMENT AND PERCEPTIONS WITHIN A HIGH SCHOOL MULTIMEDIA COURSE*** was reviewed on **11/21/2022** by the Office of Research Compliance, which is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). The Office of Research Compliance, on behalf of the Institutional Review Board, has determined that the referenced research study is not subject to the Protection of Human Subject Regulations in accordance with the Code of Federal Regulations 45 CFR 46 et. seq.

No further oversight by the USC IRB is required. However, the investigator should inform the Office of Research Compliance prior to making any substantive changes in the research methods, as this may alter the status of the project and require another review.

If you have questions, contact Lisa M. Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager