5-2018

Increased Student Learning Through the Flipped Instruction Model

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by

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A Portfolio

Submitted to the Graduate Faculty of

Saint Cloud State University

in Partial Fulfillment of the Requirements

for the degree of

Master of Science in

Information Media

May, 2018

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Chapter 1: Introduction

As a current third grade teacher, I saw the need for instruction and classroom time to be reinvented to meet the needs of our learners and be able to dive deeper into the content being taught. With the use of technology continuing to increase in our school with one-to-one iPads for students, this portfolio proposal was created to address a way that technology can be utilized more, as well as providing students with more individualized support, deeper understanding of the content, and more real-life, hands-on learning. This portfolio will address the need for a change in the standard class time structure for both students and teachers.

For educators, the demands and requirements expected of a public school teacher continue to increase (Watson, 2017). Along with the Common Core and Minnesota state standards, some newer requirements include technology, digital citizenship standards, and district initiatives. Teachers, especially those who are new to the field are "overwhelmed by the expectations" within the classroom and sometimes feel "isolated and unsupported" (Mangrubang, 2005). As the expectations continue to grow, the amount of time given to teach these numerous standards has not changed. According to Arnold-Garza (2014), "As curriculum requirements grow, instructors are pressured to make more efficient use of class time" (p. 8). With the help of technology, there may be a way for teachers to help students succeed by using more experience based learning and less content delivery lecturing. (Bergmann & Sams, 2014).

The Flipped Instruction Model (FIM) allows students to receive the content prior to class which provides opportunity for homework and hands on activities to be completed in-class, through the support and assistance of the teacher (Ash, 2012).

Students may not have a knowledgeable adult assisting them with homework at home, so the 'traditional' classroom of lecture in class, homework at home, may cause struggling students to have more difficulty (Schmidt & Ralph, 2016). The Flipped Instruction Model changes how students learn and use new content. This model shifts instruction of basic concepts to happen prior to the class so class time can be used for students to work through assignments and go more in depth with their learning (Chang, 2016).

This portfolio is divided into five chapters and focuses around the central theme of implementing the best practices for designing, developing, and integrating flipped lessons into a third grade classroom. The first chapter will provide a general understanding of topics to be covered. The second chapter will analyze research done on the Flipped Instruction Model and best practices for implementing it into a classroom. Chapter three will describe the products that will be created based on the research findings; while chapter four showcases the completed products, describes implementation, and evaluates the effectiveness of one of the products. Finally, chapter five will include a reflection of the production and portfolio process and its relation to the overall theme of the portfolio.

Context and Background of the Theme

This portfolio will focus on how to implement the best practices of the Flipped Instruction Model while designing, developing, and integrating the lessons in order to better utilize time within a student centered elementary education classroom. This theme is relevant for an elementary setting because local school districts have implemented one-to-one iPad initiatives that allow students the opportunity to utilize technology to enhance learning. Flipped lessons will give students additional support with their learning (Ash,

2012). In order to make this shift in teaching, educators need to understand the best practices surrounding a flipped classroom and how to successfully implement the lessons (Schmidt & Ralph, 2016).

Purpose

With so many tasks to complete and standards to meet, the Flipped Instruction Model gives teachers the opportunity to reinvent how they are using classroom time to best meet the needs of the students (Sams & Aglio, 2017). Implementing the Flipped Instruction Model into the third grade classroom will allow the students to receive individualized help from the teacher. More importantly, the FIM uses class time for supported homework time and allows learners to explore and go more in depth with the concepts (Chang, 2016). Since the direct instruction would happen at home, as a teacher I would be able to differentiate my teaching by reviewing concepts with students as needed and extending the material for others that have grasped the concept and are ready to go deeper with the content.

In traditional classrooms, students are accustomed to the gradual release of responsibility from the teacher (Schmidt & Ralph, 2016). This model of learning starts with a focus lesson followed by guided instruction, collaborative learning, and finally independent practice slowly giving the learner more responsibility (Clark, 2014). Although this works for many students, this leaves students unsupported when they are working on homework individually at home. This also does not allow for as much differentiation between students in the classroom to review or challenge those who have mastered the content. Using the Flipped Instruction Model would allow teachers to

redefine classroom time for homework practice and investigation while being supported by the teacher (Sams & Aglio, 2017).

Problems

Lecturing is one of the oldest and most commonly used techniques in educational settings due to its effectiveness of covering material quickly and inexpensively (Mariya & Olga, 2008). A lecture style classroom is often times not motivating for students due to the fact that it is generally passive learning (Wijnia, Loyens & Derous, 2011). Mariya and Olga also state that although it may be a quick way to present information, this type of learning usually results in memorization for only a short period of time and not a deep understanding of the material (2008).

When using a traditional classroom model, it often leaves students with homework that they are forced to do independently at home. According to Corno, "Deadly homework is a quick route to academic dread" (1996). If students are not supported at home, homework time can become frustrating and ultimately hurt the learning process. With the growing number of requirements and standards, it is becoming increasingly difficult for quality learning to happen in the allotted class time. All too often classroom time is spent delivering content through direct teaching and not engaging learning with hands-on, student-centered activities (Kostaris, Sergis, Sampson, Giannakos & Pelliccione, 2017).

Student-centered activities are personalized and meaningful for learners, and provide support to ensure success (Rathgeber & Mamenta, 2017). Comprehension and retention of the content is seen more often through active learning than lecture style teaching (Ramzan, Mushtaq, Ansar, Bibi, Sabah, Mughal & Waheed, 2015). The Flipped

Instruction Model provides a student-centered class time instead of predominantly teacher lecture, which allows students to receive guided support on homework and activities.

Significance of Portfolio

Determining and implementing the best practices found in the Flipped Instruction Model will allow teachers to create flipped lessons that can be integrated into our current curriculum. By designing my own flipped lessons based on best practices, they can serve as examples for other teachers to refer to while creating their own lessons. With limited time available to cover all standards and district initiatives, flipped lessons will allow more support for students during class as well as additional hands-on activities starting in my classroom and as an example and resource for other teachers in the district.

Within the last year, my school district has implemented a one-to-one iPad initiative in grades three and four. Although the elementary students are unable to take these devices home at this time, this may be possible very soon. With these devices available to us, it will be easier for our school district to start following the recommendations listed by the U.S. Office of Educational Technology in the 2017 National Education Technology Plan. According to this plan, it states that technology can improve and enhance learning in the following five ways (2017):

1. Technology can enable personalized learning or experiences that are more engaging and relevant.
2. Technology can help organize learning around real-world challenges and project-based learning – using a wide variety of digital learning devices and resources to show competency with complex concepts and content.

3. Technology can help learning move beyond the classroom and take advantage of learning opportunities available in museums, libraries, and other out-of-school settings.
4. Technology can help learners pursue passions and personal interests.
5. Technology access when equitable can help close the digital divide and make transformative learning opportunities available to all learners (p. 12-17).

The Flipped Instruction Model makes it possible to improve and enhance learning in the ways listed above. Because of the significant benefits of using technology, although the students are not able to bring the iPads home currently, it would still be beneficial for teachers to begin to implement flipped lessons periodically in preparation.

After best practices of design and development have been determined, learning how to implement these lessons will be necessary for all teachers. This portfolio will use the best practices in design, development, and implementation to create flipped lessons suitable for the third grade classroom. These lessons will serve as examples for other teachers to implement into their curriculum as well as a guide to create their own lessons. While implementing these lessons, I will focus on the depth of student learning and ability to redefine classroom time

Definition of Terms

21st-Century Skills: Certain core competencies such as collaboration, digital literacy, critical thinking, and problem-solving that help students thrive (Hagler, 2016).

Best Practice: A method shown by research and experience to produce optimal results in teaching and learning (Lundin, 2013).

Blended Learning: An educational experience that uses a combination of in-person class meetings and online interactions (Zimmer, 2017).

Curriculum: Lessons and academic content taught in a school.

Homework: Work assigned to students that is meant to be completed outside of school (Campbell, 2016).

Flipped Lesson: Lectures are presented as homework outside of class in online videos so that class time is reserved for engaging directly with the materials (Gaughan, 2014).

Flipped Instruction Model: A model in which the typical lecture and homework elements of a course are reversed. Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions (Schmidt & Ralph, 2015).

Gradual Release of Responsibility: A scaffolded model of teaching that moves from a teacher modeling information to a student working independently (Maynew, Julien-Schultz & Dunn, 2010).

Implementation: The process of putting a plan into effect.

Common Core Standards: A voluntary set of standards for English and mathematics for kindergarten through grade 12, developed by the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) in 2009 as a means to improve student preparation for higher education and employment and to create common standards for public schools across the United States (Boslaugh, 2015).

Student Centered Learning: A method of classroom education in which the needs of the students are the primary focus (Gilstein, 2016).

Traditional Classroom: Education with a teacher-centered delivery of instruction.

Summary

This portfolio on the Flipped Instruction Model will be useful for both students and teachers. Flipped lessons will allow students to take charge of their own learning and get support with the content from the teacher at school. Students will hopefully gain a deeper understanding of the material through hands-on activities done in class. Teachers will be able to use the projects in this portfolio to learn best practices of design and development of flipped lessons. They will also use the information to successfully implement the lessons into their curriculum. The Flipped Instruction Model could allow classrooms to be more student-centered, provide better student engagement, and have a positive impact on how students view the learning environment (Ng, 2014). The FIM moves away from teacher lead direct teaching and focuses on getting students involved (Kostaris et al., 2017).

Chapter 2 contains a literature review to discuss how class time is used in a traditional classroom and how it could be redefined through the Flipped Instruction Model. It will also focus on the best practices surrounding the design, development, and implementation of flipped lessons. Chapter 3 will define the projects that were created for this portfolio based on the research of best practices.

Chapter 2: Literature Review

Introduction

As stated in chapter one, the theme for this portfolio is to implement the best practices of the Flipped Instruction Model while designing, developing and implementing flipped lessons into a third grade classroom. My goal is to redesign how content is delivered and how class time is used. The purpose of chapter two is to analyze research found surrounding the topic of the Flipped Instruction Model. The research will help in determining how I can implement the best practices of the FIM into the products that will be outlined in chapter three.

The following review will present scholarly articles surrounding the topic of best practices within the Flipped Instruction Model. The chapter will discuss the methodology for literature review, review and analysis of a variety of research, gaps in research, and a summary of the material. This review of literature will contain two points of focus. The first part of the review will discuss how class time is used. The subtopics will include how class time is currently used in a traditional classroom and how that is changed through the integration of the Flipped Instruction Model. The second part of the discussion will focus on implementing best practices of flipped instruction and cover the sub topics of design, development and integration of flipped lessons.

Methodology for Literature Review

While collecting research information, I started on the Saint Cloud State library web page. From this page, articles were found by using EBSCOhost, Academic Search Premier. Google Scholar was also accessed for additional research.

Keyword Descriptors. Some of the key terms used to find articles included: Flipped Instruction Model, flipped classroom, flipped lessons, best practices, flipped model, blended classroom, and gradual release of responsibility.

Evaluation of Resources. In order to get the most credible and updated information, I specifically searched for scholarly or peer-reviewed journals and academic articles from credible sources. The resources ranged in date from 1996-2017. These resources were evaluated based on the relevance to the topic, date of the information, and the credibility of the source.

Review and Analysis of Research

Transition from Whole Group to the Flipped Instruction Model. According to a research study done in 2016, out of 58 teachers who were asked about using the Flipped Instruction Model, only 3 teachers were attempting this type of model (Schmidt & Ralph, 2016). In many classrooms, it is standard to teach under the same model of lecturing that has been used for many years. Since technology has become more commonly found in households and one-to-one devices are being implemented into classrooms, new varieties of teaching have started to arise. It is important to see how class time is used in the current model of teaching as well as how class time would be reinvented with the FIM.

Traditional Classrooms. Typical classrooms focus on a lecture style of learning, which "is grounded in the educational approach of the instructor serving as a 'sage on the stage,' imparting knowledge onto students by speaking and answering" (Heinerichs, Pazzaglia & Gilboy, 2016, p. 55) This type of teaching does not involve much interaction or hands-on learning for the students. This model is not student-centered and it makes the learners passive (Heinerichs et al., 2016). Not only is direct instruction passive, but has

also been proven ineffective when used as the sole method of teaching. Research on lectures has shown "A student's attention declines after the first ten minutes of class, and although it may return at the end of a class, students remember only about 20% of material presented during the lecture" (Gilboy, Heinerichs & Pazzaglia, 2015, p. 109). However, if students do not have any prior knowledge with the content being taught, direct instruction can be helpful and almost necessary in certain situations (Giboy, et al, 2015).

Many traditional classrooms currently function under the gradual release of responsibility. According to Schmidt and Ralph, this type of teaching is known as the "'I Do', 'We Do', 'You Do'" strategy (2016). This type of teaching always starts with direct instruction from the teacher to the whole group and ends with homework done independently at home (see Figure 1). While following this model, "After modeling is completed, students need opportunities to work with new learning in a supportive learning environment and gradually have opportunities for increasing levels of independence" (Maynes, Julien-Schultz & Dunn, 2010, p. 67). This style of teaching focuses mostly on the importance of modeling skills for students to follow and do independently once they get home and start working on homework. Even though the FIM would involve some at-home work, the classroom set-up would look very different from a traditional classroom.

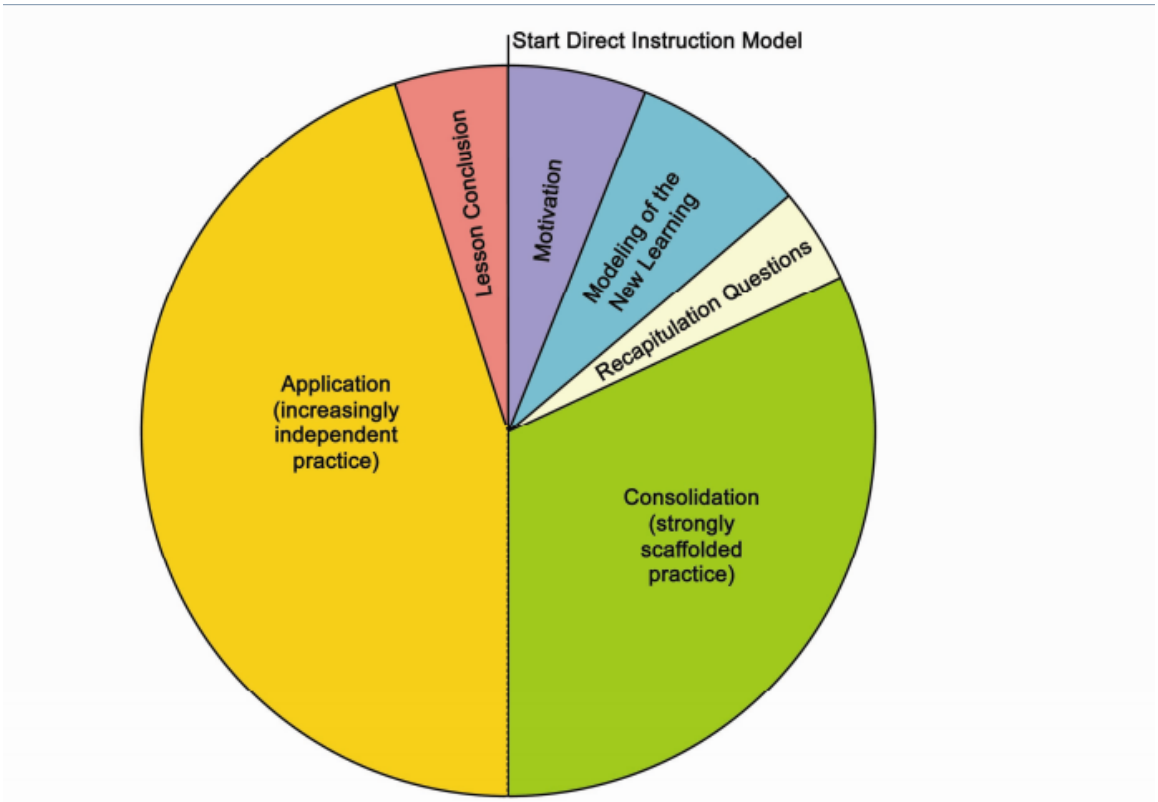


Figure 1. Phases of Instruction. This figure illustrates how direct instruction time is used.

Flipped Classrooms. In a flipped classroom, instead of the main classroom focus being on direct teaching, "Homework, inquiry, and investigation happen in the classroom" (Schmidt & Ralph, 2016). The change in instruction comes from being able to guide students through homework, dig deeper into the skills, and make the learning more individualized. Most conversations regarding flipped instruction focus upon creating videos to deliver content to students at home, but this type of instruction also allows teachers increased in-class time to change how learning happens (Sams & Aglio, 2017). Flipped classrooms allow for a better use of class time through practical application rather than inactive lecture (Cole, 2009).

A Flipped Instruction Model allows for students not to rely on parents being able to help them with homework at home but "Provides more time for hands on activities and

content inquiry and analysis" (Schmidt & Ralph, 2016). In a flipped classroom, once students have received the core instruction at home, the classroom time shifts to students being more active in their learning. Teachers are able to differentiate material easier for students at different levels, and there can be more collaborative work time to solidify understanding (Ng, 2014). Although students are more supported through this model at the pace necessary for them, it also forces students to be responsible for their own learning and reach out for additional help through the active learning process when necessary (Hoffman-Miller, 2013). According to Arnold-Garza (2014), active learning has been used in teaching as far back as the 1990s, and was not discovered or created specifically for flipped learning. Hands-on learning has been used in classrooms, but the FIM allows time for these activities and is viewed as a crucial part of the learning (Arnold-Garza, 2014).

It is a large transition to change from the traditional teaching style to reinventing how classroom time would be used in a flipped classroom. According to Marks (2015) changing to flipped instruction means "Educators need to examine teaching from new perspectives and make pedagogical choices" (p. 241). In order to have success using the FIM, it is necessary to have "Flexible environments, a shift in the culture of learning, intentional content, and professional educators" (Hoffman-Miller, 2013). This change would require an adjustment period for both students and teachers. Before deciding to modify how class time is used, teachers would first need to design and develop content for the flipped lessons.

Best Practices of the Flipped Instruction Model. According to Marks (2015), "The design of the online materials was also critical in the success of the 'flipped'

model" (p. 244). The same is claimed by Ng (2014) who states, "Flipping the classroom would require careful planning and flexibility on the teacher's part if (s)he wishes to adopt the strategy successfully" (p. 23). Flipping a classroom is not an easy task, so collecting research on best practices will allow teachers new to the Flipped Instruction Model to have successful. Unlike the face-to-face classroom, students cannot get immediate responses to questions they may have and frustration may set in, so developing and implementing courses according to research best practices is crucial (Marks, 2015). In this section, research on the best practices regarding design, development, and implementation of the FIM will be analyzed to determine how to make and implement quality lessons into a third grade classroom.

Design. Typically, teachers believe the Flipped Instruction Model makes lessons only through videos; however, Schmidt and Ralph state that technology is not necessary for a flipped classroom (2016). Many teachers have used a small aspect of the Flipped Instruction Model in the past by having students complete a required reading prior to class, but now the focus has turned to using technology to flip lessons (Ng, 2014). According to Arnold-Garza (2014), flipped lessons "have varied and evolved from slides, audio, podcasts, or narrated presentations, to video casts that may also incorporate animations, screen captures, and other multimedia content" (p.8). According to Lewis (2009), "technology is nothing without a teacher and a plan" (p. 9). When starting to design the flipped lesson, the teacher needs to be knowledgeable of the content, have a clear goal of where they want the students to end up, and recognize any challenges the learner may have with the content (Yanjie, Morris, Jong, Maiga & Weiqin, 2017). Once

content and goals have been determined, the teacher can then decide how to design the lesson.

When starting to design lessons using the Flipped Instruction Model, there are many different ways for students to learn content. According to the U.S. National Education Technology Plan (2017), "When carefully designed and thoughtfully applied, technology has the potential to accelerate, amplify, and expand the impact of powerful principles of learning." When an educator starts planning to use the Flipped Instruction Model, there will need to be a place that students can access materials at any time and review as necessary (Chung & Khe, 2017). During design, it is important to recall necessary prerequisite information for the learner; Chung and Khe (2017) also recommended referring to the First Principles of Instruction created by David Merrill to provide clear guidelines. David Merrill (2002) states the following principles:

1. Learning is promoted when learners are engaged in solving real-world problems.
2. Learning is promoted when existing knowledge is activated as a foundation for new knowledge.
3. Learning is promoted when new knowledge is demonstrated to the learner.
4. Learning is promoted when new knowledge is applied by the learner.
5. Learning is promoted when new knowledge is integrated into the learner's world (p. 44-45).

According to Chung and Khe (2017), teachers should: "Identify and prepare the learning materials for the core part of the course (completed by all students), advanced problems (for the high ability students) and extra basic exercises (for underperforming students)"

(p. 233). Finally, Chung and Khe (2017), state "Teachers should design their flipped classroom according to their students' ability" (p. 234). It is important to determine necessary prior knowledge and plan lessons that relate to the real world.

Development. For teachers that are new to the Flipped Instruction Model, creating videos can be very overwhelming and time consuming when learning the recording technology, preparing the materials, and editing your work (Porter, 2016). One way to start slow is to connect with coworkers who flip or to find fellow 'flippers' on the internet who want to collaborate (Raths, 2014). Marks (2015) supported the same fact that teachers should not feel pressure to create everything on their own, but look for material that has previously been created. Arnold-Garza (2014) states:

> "Sourcing of content from outside may be helpful for those who lack presentation skills, extensive subject knowledge, or need an outside perspective to enrich their course. Khan Academy, Coursera, TED talks, and even YouTube are online resources associated with the flipped classroom, providing access to recorded lectures, instructional videos, and sometimes other interactive elements for teaching and learning" (p. 8).

Working with other teachers and finding material already created will lighten the load for teachers and make it possible to continue with this method of instruction (Ng, 2014). Smith states that if videos from other sources are used, teachers should still have an introduction and conclusion with key points to make the lesson more personalized for students (2015).

If teachers are producing their own videos, one way to create videos is by chunking the material into subtopics so students can easily access and process large

amounts of information (Arnold-Garza, 2014). Research found that videos are most engaging if they are limited to around six or less minutes for younger learners (Guo, Kim & Rubin, 2014). Even though videos may be quite short, it might be helpful for instructors to record in intervals and combine the videos to avoid restarting the whole lesson due to an error toward the end of the lesson (Smith, 2015). Keeping your audience in mind is important while deciding the length of the video as well as an appropriate level to deliver content (Porter, 2016). While creating videos, Chung and Khe (2017) recommend following Mayer's Principles of Multimedia Learning such as excluding extraneous material, using the signaling effect, and using an informal conversation style. The signaling effect states that learning is enhanced when cues are added to draw attention to essential material. This can be done with arrows, flashing, or highlighting (Mayer, 2009). Guo, Kim & Rubin (2014) agreed with the statements that videos should be personal and engaging, use more than just plain slides, and get the content across without being as formal as a regular lecture. Prior to starting the videos, instructors should be prepared with content, examples, and an understanding of the technology being used (Porter, 2016). Smith recommends having a script ready prior to recording to refer back to and remember key details throughout the lesson (2015). Ash (2012) reiterates all of these points by suggesting the following 5 tips for flipping a classroom:

1. Don't get hung up on creating your own videos.
2. Be thoughtful about what parts of your class you decide to "Flip" and when.
3. If possible, find a partner to create videos with.
4. Address the issue of access early.
5. Find a way to engage students in the videos (p. 7)

It was found that it does not matter if content is found or created as long as it is age appropriate and delivered in short amounts of time.

Implementation. Research is very clear that as a beginner, teachers should start small and only focus on flipping one or two activities at a time to avoid being overwhelmed (Raths, 2014 & Marks, 2015). Fulton (2015) states that math and writing are easy places to start because those types of content usually have a lot of direct instruction. Once teachers are ready to upload their material for students to view, material needs to be organized. Basal (2015) suggests using a learning management system (LMS) and states that, "an LMS is an integral part of a flipped classroom, because it connects the outside and inside parts like a bridge" (p. 33). Materials must be in an easy to find location to ensure success for students.

Vazquez and Chiang (2015) stated that teachers can use 'bridging' questions after the lecture prior to the next class to check for completion, but these questions should not be graded for correctness. Another option would be to require a discussion board post prior to class so the teacher could identify student needs and misconceptions that need to be discussed during class (Moran & Milsom, 2015). Even though internet access can be an issue for some families, Fulton (2015) suggests giving students without a connection at home the videos on a jump drive or CD if a computer is available in their home. If access becomes an issue for many of the students, it is also possible to have half of the class watch the video at school while the teacher works with the other half of the class (Hennick, 2014).

When teachers first start to implement a FIM, they should encourage the learners to share their opinions and suggestions about the flipped instruction through

questionnaires or surveys in order to understand the student experience (Sohrabi & Iraj, 2016). Parents can also be surveyed to determine how students are adjusting to the change (Fulton, 2015). Moran and Milsom recommend collecting data multiple times after starting to use flipped lessons and making sure students know their opinions will not have any impact on their grades (2015). It was found that data and feedback should be collected frequently from both students and parents if applicable.

Gaps in Research

Overall there is a lot of research supporting how to design and develop lessons using the Flipped Instruction Model. Through all of the literature that was found, there was a lack of articles specifically geared towards elementary classrooms. It would be interesting to see if there would be any different suggestions for students who are specifically in third grade.

Summary

It is obvious that technology is beginning to play a big role in current education, and the Flipped Instruction Model correlates nicely into that way of learning. Traditional classrooms within class lectures focus on the teacher and usually leave the students unsupported while completing homework after the lesson. Switching to a FIM classroom allows for an increased amount of active learning and makes the focus student centered.

Although flipping can be a large task, teachers need to remember it is not necessary to create all of their own material, and that it is always better to start small and keep improving as they feel comfortable. It is also important for lessons to be organized and easily accessible for students.

Chapter three will introduce the projects that are developed based off of the research done in chapter two surrounding the best practices for designing and developing flipped lessons.

Chapter 3: Project Description

Introduction

The problem stated in this portfolio is the lack of classroom time available to teach the growing number of standards. Chapter two discussed how class time is currently used in a traditional classroom as well as the best practices surrounding the design, development, and implementation of lessons using the Flipped Instruction Model. The three products that will be created for this portfolio include a tutorial to introduce the 3rd grade students to the FIM, money modules that will serve as the flipped lessons, and an evaluation to determine how successful the FIM style of learning was for the students. By using the products described in this chapter, the learners will work through instructional material outside of the classroom and be able to practice their skills and complete homework with the teacher during class time.

Target Audience

The target audience for all of these products will be my current class of third grade students at Pine Meadow Elementary School in Sartell, MN. For the 2017-2018 school year, I have 22 students in my classroom that will be participating in these flipped lessons. The ages of the learners range between eight and nine years old. The students will be required to complete these lessons as part of their money unit. Since the students usually have a worksheet as homework, many will be motivated by the fact that they will get to use technology as part of their homework. Students who struggle with math will be motivated to learn from a video instead of struggling through an assignment on their own at home. During my math class, there are no students with special needs in the classroom. Three of the students receive speech services, and seven students receive additional

reading services through Title 1 or Reading Corps of America, but this will not affect their ability to participate in the lesson. Within the classroom there are six students that qualify for free and reduced lunch. Those students are able to eat breakfast at school every morning. All students within the class have access to internet at home. If devices are not available to use at home, an option to use their student iPad before or after school will also be available.

Throughout this process, no personal information about the audience will be collected. Information about the students' learning will be collected through interviews and surveys. This information will be used to determine if the best practices being implemented are successful and if students gained a deeper understanding of the material by using the Flipped Instruction Model.

Description of Products

Product One. The first product will be a tutorial for introducing online learning. Prior to the tutorial being created, a design document will be used to collect information such as an audience analysis, prior knowledge, physical characteristics, and ability levels. Once this design document has been completed, I will create a tutorial for students to learn how to be successful in a classroom using the FIM. I will create a task analysis to help determine which material is necessary to include in this tutorial.

Goals and Objectives. After completing this tutorial, students should feel confident accessing flipped lessons at home and guiding themselves through the lessons. Students will also have a clear understanding of what they need to have done prior to returning to class the next day.

Media Used. Since this will be an introduction to online learning, this tutorial will need to be done with a very basic tool so 3rd graders do not have to struggle with using complex navigation or instructions. I will be using a screencasting application to show students where to find the lessons, specific navigation, and what they should be doing during the lesson. This video will be available for the students through Schoology, our school's learning management system (LMS).

Methodology for Analysis and Evaluation. Initial analysis of the learners and their needs will be done through the design document prior to creating the introduction module. This will be done through interviews and surveys with students about their prior knowledge, looking at the classroom demographics, and any individualized education plans (IEPs) that the students in the classroom have. Information will also be collected from our technology integrationist about technology used with these students in prior years.

In order to evaluate this product, I will look at the ease of usability for students. This will involve being able to locate the material and the ability to work on any type of device that they may have at home. The content will also be evaluated based on its effectiveness to introduce students to the idea of a classroom using the FIM and how to properly interact with the lessons and materials. After completing both of these evaluations, modifications can be made if necessary.

Context for Implementation. The implementation of this project will consist of publishing the screencast to our classroom Schoology page. This will allow students to access it at home or at school. The first product will be viewed at school on the student one-to-one iPads in order to answer any questions about the FIM that the students may

have. Students will have logged in to this LMS numerous times prior to this, so they will be very confident on how to locate the material. Since this product is being viewed at school, it will also be easy to help guide students as necessary.

Product Two. Product two will include a modified design document for this group of learners, a storyboard for the flipped lesson, and the complete money lesson. The first part of the lesson will involve a quick review of identifying and counting money which is a second grade standard. In order to scaffold the information up to the third grade standard of counting change, it is necessary to review these skills at the beginning of the chapter. The second part of the lesson will introduce to the students how to count back change. Since this is a difficult skill for many students, a flipped lesson will allow students to have an introduction to the material prior to arriving in the classroom for additional practice. This lesson will offer a video with an explanation of the necessary steps as well as a practice problem for the students to try on their own.

Goals and Objectives. The goal of this product is to successfully implement the Flipped Instruction Model through at home lesson on money. The objective for the students is to have a basic understanding of identifying money, counting money, and counting change by watching the at home lesson prior to arriving in class the following day. The 3rd grade student will need to access and watch the video as well as complete a practice problem after the video prior to the next math lesson.

Media Used. For this product, I will use iMovie to create the flipped lesson for students. With this tool, I will be able to upload pictures of slides that will be created in PowerPoint and talk through the lesson over the top of the pictures.

Methodology for Analysis and Evaluation. An evaluation of the lesson's usability will be done prior to having students complete the modules. This will be done by trying to navigate through the lessons on a variety of devices to ensure that the lessons can be done at home.

Context for Implementation. The implementation of this project will consist of publishing the iMovie module to our classroom Schoology page. This will allow students to access it at home on a traditional browser, tablet, or any other mobile devices. Since students will have logged in to this LMS numerous times prior to this, they will be very confident on how to locate the material. Students will need an internet connection in order to access the material.

Product Three. The final product that I will create will be an evaluation of the products used and their effectiveness. The evaluation will allow me to collect data on the strengths and weaknesses of the implementations of flipped instruction. The questions will help me reflect on the production and implementation of the lessons in my classroom. Without collecting any names, I will also be able to discuss with students how the lessons went, if there was anything they were confused on, if they prefer to learn the lesson in class or at home, and if they would like to incorporate more flipped lessons into the classroom.

Goals and Objectives. The goal for this product is to collect information about the Flipped Instruction Model. Through the evaluation, the objective is to identify strengths and weaknesses of a flipped classroom and what parts of the process could be improved for better achievement.

Media used. The evaluation will be a series of questions I will ask myself and document through Google Docs. I will also anonymously keep track of any comments or feedback I receive from students and/or their parents.

Methodology for Analysis and Evaluation. Usability evaluation will happen prior to the link being available for the students. At that point, changes can be made before seeing if the use of the product was successful. After my evaluation, an analysis of the results will be done to determine the benefit and success of using the Flipped Instruction Model. This information, along with their test scores, will allow me to determine the effectiveness of the flipped classroom style of teaching.

Context for Implementation. The implementation of this project will consist of self reflections on the usability and functionality of product two.

Institutional Review Board Approval. I have completed the IRB training for graduate students on February 19, 2017. During this process, all of the data collected will be anonymous and have no risk to the third grade subjects, so I will not need to obtain approval from the Institutional Review Board.

Application of Products. All of these products will be created to give the third-grade student an introduction to the Flipped Instruction Model in the classroom. The products will use the research from chapter two to implement the best practices of the FIM. The products will allow the students to receive the learning material at home in order to practice their homework and collaborate on a variety of extended material during class time. This type of learning will allow students to become familiar with the material and come with questions or areas of confusion during practice time the next day. This

will also free up class time to be re-directed and used to support students on additional practice and collaborative projects.

Timeline

October 2017

- Meet with advisor to discuss first three chapters of portfolio
- Form a graduate committee

November 2017

- Official proposal meeting with graduate committee members

December – March 2017

- Project production and completion
- Final meeting with graduate committee members

April 2017

- Oral and written exit interview with the Information Media department
- Submit portfolio to ETD Institutional Repository

May 2017

- Graduation

Summary

The three projects included in this chapter follow the best practices surrounding the design, development, and implementation of flipped lessons as researched in the literature review found in chapter two. These products were chosen as a way to introduce the third grade students to the Flipped Instruction Model in a classroom environment. Throughout the creation of the projects, I will be using the instructional design process and integrating Mayer's Principles for Multimedia Learning. The data collected from

these projects will help show strengths and weaknesses in this type of classroom structure.

Chapter four will give a complete description of the products named in chapter three. It will also give a description of the implementation process for each of the products. Finally, chapter five will include a reflection on each product and how it relates to the overall theme of the portfolio as well as the literature findings.

Chapter 4: Project Showcase

Introduction

Chapter 4 will give an in-depth look at the products that were described in chapter 3. The first product is a tutorial for introducing online learning to the third grade students. This chapter will include the design document used to collect information prior to creating the tutorial, slides used within the tutorial, and a live link to the completed tutorial.

The second product that will be shown in this chapter will be the actual money flipped lesson. This section will include a design document, a storyboard, slides made in Microsoft PowerPoint for use during the video, and a live link to the completed flipped lesson video made in iMovie.

The third product that will be described in this chapter is the self-evaluation created to determine the effectiveness of products one and two. The questions used on this evaluation will be shown in the Google form.

Product One

Description. Product one will show the tutorial given to students to learn how to locate and learn from the flipped lesson at home. I started by creating a design document to determine what the learners already know and what should be included in the tutorial to make them successful while using a flipped lesson for the first time.

Audience Analysis. The third grade students are very familiar with using their iPads to locate links off of our school's learning management system, Schoology. On their individual iPads, students have already logged in with a username and password to

Schoology, and that information has been saved. All of the students know how to access Schoology, find links in specific courses, and click on the links to view information.

All of the learners are in third grade and are either 8 or 9 years old. These learners are in their fourth year of formal education. There is a wide range of familiarity with technology and their comfort level using it, but all have successful been able to use and access Schoology independently.

Learning Context. The online tutorial will instruct the students how to find the flipped lesson at home as well as how to learn from the video at home. The video tutorial will be watched at school in order to answer any additional questions the students may have. Students will spend approximately 5 minutes completing the tutorial. The tutorial will be available on our schools learning management system, Schoology.

Needs Analysis. The purpose of this resource is that the students will have an understanding of how to locate and learn from the flipped lesson at home. Even though the students are familiar with Schoology, they are not able to bring their iPads home with them, so they will need to log-in to Schoology if their parents are not already logged in. It is also vital that students know what to do while watching the video and why it is important to pay attention to the material. The students also need to know that they should use what they learned to complete the practice question that will be discussed the next day in class.

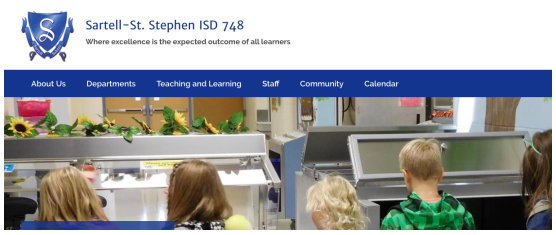
Objectives. The following are desired outcomes after using product one:

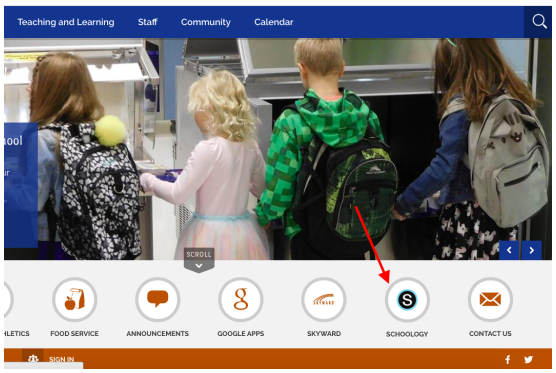
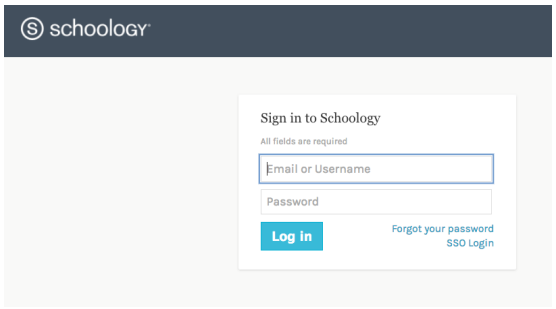
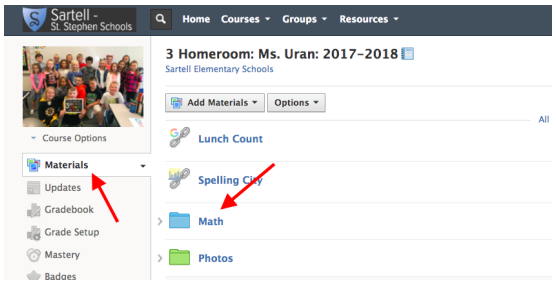
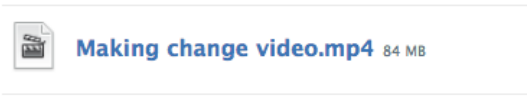
- Given a video tutorial with instructions on how to locate the flipped lessons at home, the student will understand how to access the video at home.

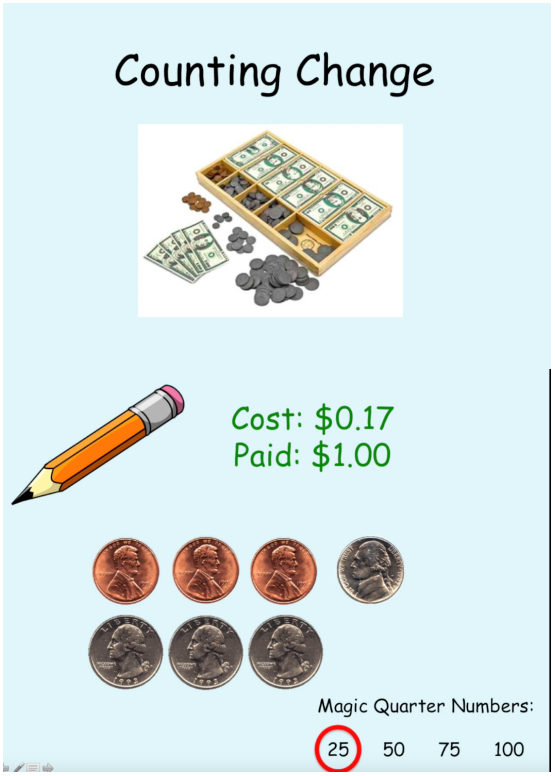
- Given a video tutorial explaining how to complete the flipped lesson, the student will feel comfortable learning from the video and completing the at home practice problem.

Treatment/Control. The slides for this product will be created in PowerPoint and then my voice will be recorded over them using iMovie. It will start by giving the learner an introduction of what a flipped classroom is and how it will be incorporated into their math class. The tutorial will then explain how to access the video at home. Finally, the video will show the students what to do during the video and how to complete the practice problem after the flipped lesson is complete. The user will not have very much control since it is a video, but if they are not understanding the material they have the ability to replay it and ask me any questions about the new flipped learning activity. The product will be very visual using actual screenshots of our school website and Schoology page.

Storyboard.

Voiceover will explain: -What is flipped classroom and what will we be doing?	
-If not logged into Schoology start at the Sartell School District Website	

-Click on the Schoology link	
-Log into Schoology with your school username and password	
-Go to our homeroom course	
-Select ‘materials’ and go into the math folder	
-Find the video called ‘Counting Back Change’	

-Watch the video to learn the steps of how to count change. Use this lesson to help you learn the steps to try it on your own.	
-When the video is over try the practice problem. If you don't understand you can go back and watch the video again. The problem is just practice and will be discussed at the beginning of class. -Bring the practice problem to school and be ready to do more hands-on learning	

Video Link. The final video is 4 minutes and 13 seconds in length. The students will watch this tutorial the same day they will be doing the flipped lesson at home.

Product Two

Description. Product two is the actual flipped lesson focusing on the third grade money standard of counting back change. This is the lesson that students will watch at

home prior to returning to class and practicing the skill. In order to create this lesson, a design document was created to analyze the audience and determine their needs.

Audience Analysis. The third grade students all have prior knowledge on this topic and have had an introduction to money in prior grade levels. At this point, the students are familiar with all of the coins and how much they are worth. They are able to count a pile of various coins. For those that had not mastered this skill, they were given additional instruction in previous lessons. The students have also had practice with using subtraction to find how much change would be received after a transaction. These skills are covered in the math standards for grades Kindergarten through second grade.

All of the learners are in third grade and are either 8 or 9 years old. These learners are in their fourth year of formal education. These students have a variety of ability level when it comes to math skills and counting coin values. There is also a wide range of familiarity with technology and their comfort level using it. There is a very diverse range of learners within the math class that will be utilizing this material.

The learners are motivated to learn this material because it is a required course concept that they will be tested on throughout the chapter. It is a skill that will be worked on for many lessons. They will use this skill to run a pretend in-class store prior to the end of the chapter. Adding a technology aspect to the material will also be motivating to most students.

This flipped lesson will be used after the learners have a solid foundation of what the coin values are and how to count them. The learner will watch this video as an introduction to the new concept.

Learning Context. The online flipped lesson will include a review of prior knowledge, an introduction to the new skill, some guided practice questions, and a problem to try individually prior to class the next day. Students will spend approximately 15-20 minutes completing the lesson. The lesson will be available asynchronously on our schools' learning management system (Schoology). This will allow parents and students to access it at a time that works best for them. Allowing the students to work at their own pace and rewatch the video as necessary will allow for a deeper understanding of the skill.

Needs Analysis. The purpose of this resource is that the students will have a basic introduction of the topic prior to coming to class. This will allow the instructor to apply the skill more quickly and provide more hands-on practice and real life examples. The students need an introduction to this skill so that they can move at a pace that is comfortable for them and they have a starting understanding of the topic when class begins. By creating this lesson to be done at home, the instructor will benefit by not using as much class time to introduce the topic. The learners will benefit because they will be able to work at their own pace and get individual help during the class period if necessary.

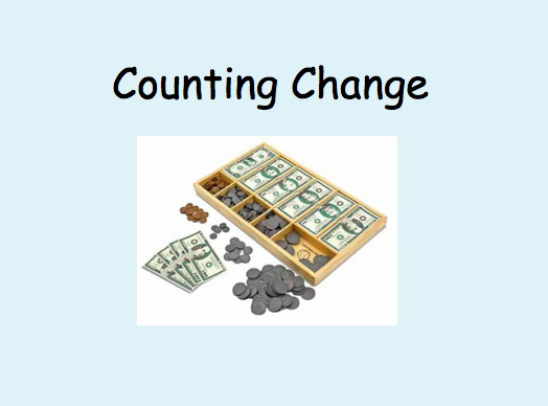
Objectives. The following are hopeful objectives for being able to use the product at home as well as the desired outcomes after using product two:

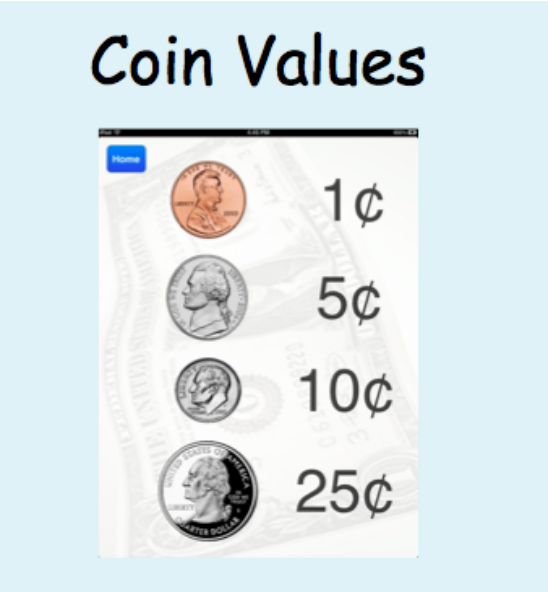
- Given a tutorial of how to use a flipped lesson and instructions on where it, the student will locate and watch the video lesson at home prior to the next class period.

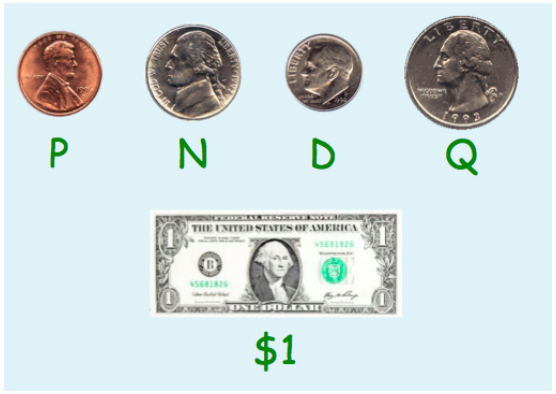
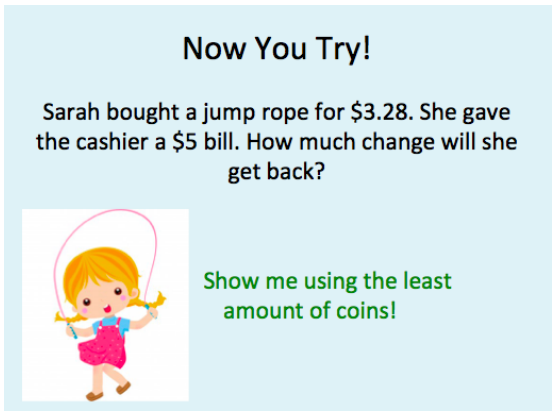
- Given an introduction to counting change through the flipped lessons, the student will attempt the homework question and bring it to class with them the next day.
- Given a flipped lesson and additional practice in class, the student will count back change using the least amount of coins with 100% accuracy.

Treatment/Control. The slides for this product will be created in Microsoft PowerPoint and then my voice will be recorded over them using iMovie. It will start by giving the learner a reminder of coins and their values. Throughout the video, users will be introduced to the steps to counting back change. Toward the end the presentation, it will be the learner's responsibility to take what they learned and answer a counting change problem on their own. The user will not have very much control since it is a video, but if they do not understand the material they have the ability to replay it and continue practicing. The product will be very visual using actual coins, and it is something they could do at home with coins themselves. The presentation will be completely through video while I narrate.

Storyboard.

Voice over will explain: Overview of the lesson	

Review of what each coin looks like and the value of each.	
Explain the magic quarter numbers. When counting back change always go up to the nearest quarter number and then count using quarters.	
Do the first example buying a pencil and counting change back to a dollar.	

Do a second example buying a Reese's for change up to $5.	
Explain that to make it easier instead of drawing coins we will use the first letter of each coin.	
Do a third example buying a cupcake and counting change back for $5. This time we will use the letters instead of coins.	
Read the practice problem and explain they should try the problem on their worksheet and bring it back tomorrow to discuss.	

Video Link. The final video is 7 minutes and 1 second in length. The students will access this lesson through Schoology and watch it at home.

Product Three

Description. Product three is a self-evaluation of products one and two. The questions created will be used to determine the usability, accessibility, functionality, and effectiveness of the products used with the third grade learners. These questions are located in a Google Form and my responses are also collected in that document. Questions 1 - 7 refer to product one and questions 8 -17 refer to product two.

Questions. The following questions are included in the self-evaluation:

1. Were students able to easily access product 1?
2. Did the video work on the student iPads?
3. Did the pictures match the audio?
4. Were the directions clear and easy for the third grade student to follow?
5. Do the students feel comfortable locating the video at home?
6. Do the students understand what they need to do during the lesson?
7. Is it clear to the students what they should do after the lesson?
8. Is the flipped lesson (product 2) accessible on numerous devices?
9. Were all of the students able to locate and watch the video at home?
10. Do the pictures/slides match the audio?
11. Is the lesson appropriate for beginners?
12. Are the examples appropriate for the learner?
13. Was any part of the lesson difficult to understand?

14. Does the lesson flow well?

15. Did the students come to class with the practice problem completed?

16. Did the students have a basic understanding of the skill when returning to class?

17. Additional comments about product two.

Product link. The self-evaluation Google Form is where the questions are located and where I entered my responses to the questions.

Chapter 5: Reflection

Through my classes at St. Cloud State University, as well as technology conferences that I have attended, I became very interested in the Flipped Instruction Model. I was unsure if this type of learning would ever be possible at such a young age until I was able to connect with other educators that were also interested in the FIM and using it in their classrooms. The daily requirements to be taught in the classroom seem to keep adding up, so I am always interested in new ideas that will allow for more hands-on practice for my students.

When I started to become interested in the Flipped Instruction Model, I took parts of the model and implemented them into my guided math. Prior to my research, I wasn't sure if I would be able to have students watch lesson at home, so I started having students watch videos that I found in the rotation prior to meeting with me during class. I think this was a nice introduction for my students to start learning from a video. Although it did meet my goal of having students be introduced to the material prior to meeting with me, it took up time during math when they could have been practicing another skill. Since there currently aren't any teachers in my building completely implementing the Flipped Instruction Model, I thought it would be best to learn from scholarly articles and journals to find out the best practices.

Through my research about designing and developing flipped lessons, the fact that surprised me the most was that while creating flipped lessons it wasn't always required to make your own video. This is really helpful because there is a lot of quality content already online, and it saves a lot of time by being able to use these

videos or to integrate parts into the videos that I am creating. Knowing the prior knowledge of the learners and building off of that starting point is crucial to learner success. Many articles also stated that it is very helpful to share the load of making flipped videos with other teachers. Once I am comfortable creating videos for my own class, I would love to share this knowledge with the other third grade teachers to see if anyone else would be interested.

I knew implementation would be one of the most difficult parts of using the Flipped Instruction Model, so this part of the research was the most interesting to me. Many journal articles stated that you should start small with just a couple videos, which was reassuring that I didn't have to fully flip my math class. Access was also a large part of my hesitation to do use the FIM. It was encouraging to read research that supported numerous options for students to be able to watch flipped video lessons. For most students in my classroom, retrieving the video from our learning management system is easy. For students without access, I am able to offer them options such as downloading the video to a jumpdrive, watching it at Kidstop (our afterschool program), or watching the video before school. Researching all of these options for implementing flipped lessons has allowed the process to happen more smoothly.

Designing, developing, and implementing product one and two greatly helped me put the research into action. I found it extremely beneficial to think through the whole process in great depth while creating the two design documents. Walking through all of these steps made me really think through what prior knowledge the students did have and what was the most crucial information to fit

into the video. As a teacher I am used to scaffolding lessons, but knowing that I needed to fit the information into a condensed time limit and would not be receiving immediate feedback from learners like I do in class was an added challenge. This process certainly made me think through what was most important and how to pace the lesson to meet the needs of all learners. I believe that the flipped lesson (product 2) went slow enough to help the struggling learners, but also provided the right amount of practice for students who quickly grasped the skill of counting back change. One tip I took from research was to record the videos in small sections so it was easy to fix if a mistake was made. I am glad I took this advice, not only for the purpose of fixing mistakes, but this will also allow me the ability to add or take away portions of the flipped lesson to use in coming years.

On the night of the assignment, most of the students were able to locate the flipped lesson on Schoology and watch it at home without any issues. I had two families that were unable to access Schoology, so I ended up emailing the video to them so they could watch it at home. I did have two families that requested to have their child watch the video at school, so these students were able to come into the classroom early and watch the lesson before school began. When the students returned to school the next day, there was a lot of excitement about the new way of learning. The students couldn't wait to share how they did on the practice problem and share their stories about the assignment. The students seemed to take more responsibility for their own learning and could tell me exactly where they got stuck with the skill. This was extremely beneficial because I was able to have students who were confident with the skill work on a practice activity while I worked with

the students who weren't as confident in a smaller group. Overall it seemed as though the students grasped the concept more quickly and I was able to extend the skill for students who were ready to move on. Throughout the process I was most surprised about the reaction from the parents. I received many emails stating that they appreciated being able to see what their child was learning about and how it was being taught. In these emails, they said that it is often difficult to help their child with homework because they don't remember the skills or they are being taught differently than how they learned. I even had some students tell me that their parents took out real coins and helped practice the skill with them. Being able to get parents involved in their child's learning was a surprising outcome. Parent support and help at home could be extremely beneficial to the third grade students. The students did very well on the end of the unit assessment, and in my opinion gained a much deeper understanding of the skill compared to previous years.

I have really enjoyed going through the process of researching, developing, and implementing the Flipped Instruction Model into my third grade classroom. All of the information that I have found make me believe it is possible to make this model work in an elementary classroom. In the future I intend to continue making videos to integrate into our math curriculum. I would like to share these videos with my colleagues and hopefully encourage other teachers to start creating flipped lessons with me. In three years our school district will be shifting buildings, and I will be working at a building that holds grades 3-5. At that time, it may be possible for students to bring their one-to-one devices home, which will continue to support the idea of integrating the Flipped Instruction Model into the classroom. I believe

this experience has prepared me to continue enhancing my own personal teaching as well as be a leader for colleagues that are interested in integrating the Flipped Instruction Model into their own classrooms.

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