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Early Childhood Educators' Perceptions, Attitudes, And Beliefs On Use Of The Modern Classrooms Project: A Case Study

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EARLY CHILDHOOD EDUCATORS' PERCEPTIONS, ATTITUDES, AND BELIEFS ON USE OF THE MODERN CLASSROOMS PROJECT: A CASE STUDY

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EARLY CHILDHOOD EDUCATION

ABSTRACT

The purpose of this qualitative study was to explore how early childhood educators perceive the use of Modern Classrooms Project (MCP) in their classrooms. MCP is an instructional model that promotes blended, self-paced, and mastery-based learning with ties to constructivist teaching ideals. Data were collected using a teacher interview, observations, and the review of teacher resources such as lesson plans and student learning paths. Previous research found MCP was effective at the secondary level. Findings of this study showed that early childhood educators found MCP to be an effective instructional model to use in their classrooms. I identified three themes: differentiation, self-paced learning, and time consumption. Findings of this study provide information regarding the use of MCP in early childhood classrooms, specifically kindergarten through third grade classrooms.

Keywords: Modern Classrooms Project, blended learning, self-paced learning, mastery-based learning, constructivism, Mayer

DEDICATION

To my children, husband, and parents.

I could not have done this without your support.

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INTRODUCTION

Individuals living in today's societies typically interact with technology daily and through different means. It is no surprise that teachers are increasing the use of technology in their classrooms. Many teachers have implemented the use of blended learning formats (Powell et al., 2014). One blended learning model that teachers are beginning to implement is the Modern Classrooms Project (MCP).

What is Blended Learning?

Orlich et al. (2004) stated that child-centered approaches in teaching have become a modern-day push in the world of education. Too much whole group instruction without considering the individualized learning needs of students has come under scrutiny. The approach of only providing whole group instruction to a large number of students as the model of instruction has ties to how teaching occurred in classrooms during the Industrial Revolution. Too much whole group instruction interferes with students' ability to grow as autonomous learners (Orlich et al., 2004). Therefore, modern-day teachers must explore better ways to provide instruction to their students.

Moving past using whole group instruction has required teachers to search for adequate instructional models. Blended learning has become a popular option in many modern classrooms. Educational stakeholders have expressed an increased interest

regarding the adoption of blended learning to help improve educational experiences offered to children (Powell et al., 2014). The Christensen Institute defined blended learning as:

> A formal education program in which a student learns: at least in part through online learning, with some element of student control over time, place, path, and/or pace; at least in part in a supervised brick-and-mortar location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. (Blended learning model definitions, 2012, para. 1)

Educators work to develop tools, resources, models, configuration of time, and the classroom space to prepare classrooms for blended learning (Powell et al., 2014). Teachers wanting to incorporate blended learning into their classrooms must determine what model to implement in their classrooms.

Modern Classrooms Project

A new instructional model that uses blended learning is called the Modern Classrooms Project (MCP). The MCP concept was created in 2018 by Kareem Farah and Robert Barnett, both math teachers in Washington, DC. These two educators agreed that the diversity of skills and experiences of their students made traditional lecture-based teaching not an effective option. They were determined to develop a better method to teach their students. Together they developed an instructional model that allowed students the opportunity to learn at the pace that was right for each student and allowed teachers more free time to address student needs. These two men then began to train colleagues on the MCP model in 2018, and teachers are beginning to implement the model worldwide (Murray, 2021).

The creators of MCP have developed a mission, vision, and values for their instructional model. The Modern Classrooms Project Mission Vision and Values (n.d.) page states the vision of MCP is for all students to be supported while also challenged. As students participate in self-paced learning, they build their understanding as they progress through lessons. Teachers make instructional decisions that meet student needs. The use of technology creates opportunities for meaningful interactions between teachers and students. Part of the vision is "when teachers build Modern Classrooms that use technology to meet every student's needs, our learners develop deeper content mastery and greater self-worth, while our educators become happier and more effective" (Mission, Vision, & Values, n.d., para. 2). This allows educators to meet the needs of all learners.

There are five values of MCP according to the Modern Classrooms Project Mission Vision and Values (n.d.) website. First, students deserve a classroom that is responsive to students' needs with an educator who has the mindset that all students are unique learners. The second is that teachers can impact students both in and out of the classroom. Third, there is constant change, and using MCP requires change and designs how instruction is provided. The fourth value is that every person can always learn more including students, teachers, and stakeholders. Last, the MCP movement belongs to everyone. Each person has their own experiences and something to contribute.

The MCP website states that they "lead a movement of educators in implementing a self-paced, mastery-based instructional model that leverages technology to foster human connection, authentic learning, and social-emotional growth" (Modern Classrooms Project, n.d., para. 1). This model is different from existing classroom models

that integrate student use of technology because it emphasizes and incorporates self-paced, blended, mastery-based principles into the instruction provided by the teacher (Wolf, 2019). The MCP model provides students the opportunity to interact with assigned learning materials at their own pace, thereby freeing teachers to spend more time one-on-one with students (Murray, 2021). MCP fosters a blended learning environment in which students work individually with virtual assignments, which include teacher-created videos, while also having the opportunity to work with the teacher face-to-face in whole group, small groups, or individual settings. According to the MCP website, the approach is designed for teachers to use a model that empowers students regardless of their background or academic abilities (Modern Classrooms, n.d.).

Educator whole group instruction is replaced with instructional videos made by the teachers. Teachers also create learning paths for their students to follow. Learning paths are the list of activities the teachers have generated that students must navigate at their own pace to work on the intended lesson topic (See Figure 1). Other learning paths can be found in Appendix H.

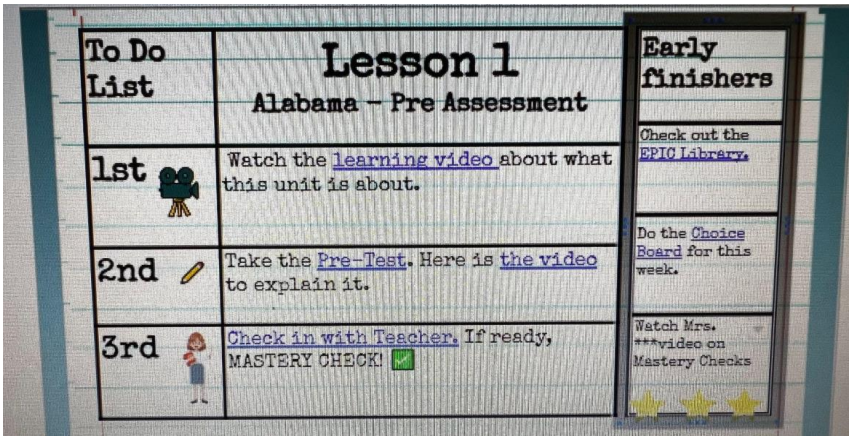

Figure 1. First grade learning path.

Students have flexible structures as opposed to a one-size-fits-all mindset. Students can work at their own pace. Teachers set mastery checks to make sure students understand content through the videos and practice provided. While students are working on their learning paths, teachers can pull students for individualized instruction and small groups (Modern Classrooms, n.d.).

MCP was first introduced at the secondary level but is now being used in both early childhood and elementary classrooms. Teachers at the early childhood, elementary, and secondary levels have completed the MCP training and are implementing this blended learning model in their classrooms. It is important to study MCP in early childhood classrooms to determine if teachers who have completed the MCP training and implement it in their classrooms find this blended learning model beneficial for their students' learning.

In the two vignettes below, I compared what could be observed in a traditional blended learning classroom compared to what could be seen in an MCP classroom. Blended learning and characteristics of MCP are compared in Table 1.

Vignette 1: Traditional Blended Learning Classroom

Mrs. Jones teaches a lesson during her English Language Arts block to the entire class. She then displays a computer slide on the board with activities for the students to complete independently for one hour. These activities include things like reading books online, timing independent reading, recording reading aloud, and completing phonics and comprehension sheets that are turned in for Mrs. Jones to review later. While students are

working on the activities, Mrs. Jones pulls groups of students to provide small group or individual instruction.

Vignette 2: Modern Classrooms Project Classroom

Mrs. Arrington begins the portion of her English Language Arts block. Students are instructed to begin their independent reading work. Each student uses their individual Chromebook and clicks on a link that directs them to their electronic learning path. On this learning path, there is a video the teacher has created assignments that have been posted, and instructions for mastery-based learning sheets to check for understanding. Creating the video allows the teacher to teach students on their Chromebooks while also teaching small groups at her table. Assignments included on this learning path are independent learning with a timer link, comprehension paper packet, recording themselves reading. At this point, the students complete a mastery check based on the teacher video and independent assignments and bring it to Mrs. Arrington. If the student receives 80% or above, the students move on to independent work in a learning management system that has students work on appropriate reading lessons based on diagnostic assessments given three times during the school year. If a student cannot reach 80% on their first attempt, the student is sent back to their desk to try the mastery check again. While students are completing these assignments independently, Mrs. Arrington is pulling small groups of students to conduct reading groups that focus on sight words, comprehension, and phonics. Mrs. Arrington reserves the last 10-15 minutes of this block to pull students to her table that did not achieve 80% on the mastery-check so she can reteach as needed.

Table 1

Comparing Traditional Blended Learning With Modern Classrooms Project Model

	Teacher-Created Videos	Self-Paced Learning	Blended Format	Mastery-based Learning	Small Group Instruction
Traditional Blended Learning	X	✓	✓	X	✓
Modern Classrooms Project (MCP)	✓	✓	✓	✓	✓

Note. These models have many features in common. MCP requires teachers to create videos and post them as part of the learning path. The students can rewatch videos as needed to help with understanding. Mastery-based learning allows for the teacher to determine during the lesson if a student understands the concept, and reteaching during that instructional block if needed.

Problem Statement

MCP is a new blended learning instructional model that began in 2018 (Murray, 2021). Impact studies at the secondary level completed by Wolf during the 2018-2019 school year, Wolf et al. during the 2019-2020 school year, and Morrison et al. during the 2020-2021 school year, found that most of the teachers perceived MCP as positively impacting their ability to teach students. All teachers that participated in the 2020-2021 study were willing to recommend MCP to fellow educators (Morrison et al., 2021). The general research problem is that research has not been conducted with early childhood educators to gauge their perceptions, attitudes, and beliefs about the use of the MCP model to teach students in their classrooms.

Gap in Literature

This study is needed to determine how early childhood educators in kindergarten through third grade classrooms perceive the use of MCP with younger students. Completed research and impact studies that gauged teachers' perceptions of the use of MCP only have been completed at the secondary level. Results from the three studies determined that teacher and student participants believed that MCP was a good option for educators to use (Morrison et al., 2021; Wolf, 2019, 2020). There was no research available on the use of MCP in early grades to discover if teachers in these grades have the same perceptions. Through communication between members of the MCP research department and me and a review of the literature, all involved parties were not aware of any studies that researched this topic with early childhood schoolteachers. Early childhood teachers are implementing blended learning models in their classrooms, but there are no studies on the MCP blended model with educators from these grades.

Purpose of the Study

The purpose of this case study was to explore early childhood teachers' perceptions, attitudes, and beliefs about the use of the MCP in kindergarten through third grade classrooms.

Summary of Data Collection

Interviews were administered to measure teachers' perceptions, beliefs, and attitudes regarding MCP in their classrooms. I also conducted classroom observations of the teachers implementing MCP and reviewed teaching resources [lesson plans, learning

paths] to collect data for this study. The collection of these data provided information on how teachers perceive the use of MCP in kindergarten through third grade classrooms. This inaugural study of MCP in early childhood classrooms provides useful information for both the MCP organization and other early childhood educators who may be interested in completing the MCP training and implementing the model in their classrooms.

Research Questions

How do early childhood educators perceive the use of the Modern Classrooms Project in their classrooms?

The sub questions are as follows:

1. What are early childhood educators' beliefs/attitudes regarding the Modern Classrooms Project in their classrooms?
2. What factors impact early childhood educators' use of MCP in their classrooms?
3. What are early childhood educators' perceived barriers to the implementation of MCP?

Significance of the Study

This study gathered information from participants regarding their perceived use of MCP in their early childhood classrooms. The study contributed to research on one instructional learning model, MCP. The research findings are important for educators considering MCP, school and district administrators, and members of the MCP community involved in the training and implementation of the MCP model in their

classrooms, schools, and districts. This study provided knowledge about if kindergarten through third-grade teachers believe MCP is a useful instructional model to use in their classrooms.

Assumptions

The assumptions for this study are the following:

1. Teachers are implementing MCP.
2. Teachers will respond openly and honestly regarding their perceptions of MCP in their classrooms.
3. Teachers will be open to participating in this study due to its significance.

Theoretical Framework

A more contemporary theory, Richard Mayer's cognitive theory of multimedia learning, is also supported by practices associated with blended learning (Mayer, 2020). Benjamin Bloom proposed the idea of mastery learning. Mastery learning is an instructional strategy that provides flexible options for both teachers and their students (Bloom, 1968). Blended learning in most classrooms today can be considered a constructivist teaching method (Cronje, 2020). Student-centered teaching and learning practices described in Piaget and Vygotsky's theories can be identified with blended learning.

Richard Mayer's Cognitive Theory of Multimedia Learning

Dr. Richard Mayer is a distinguished professor of psychological and brain sciences at the University of California, Santa Barbara. He has devoted his career to applying science to education to attempt to understand how people learn. Dr. Mayer developed the cognitive theory of multimedia learning. Multimedia learning is when individuals are given the opportunity to learn from both pictures and words simultaneously. Adding pictures to words helps learners better understand what is being taught and presented. This occurs because a student's full capacity for processing information is occupied. Multimedia instruction can be based on a technology-centered approach that incorporates the use of technology or the learner-centered approach which focuses on humans' cognitive nature. Research conducted on multimedia learning draws from the sciences of assessment, instruction, and learning (Mayer, 2020).

The cognitive theory of multimedia learning was developed by Mayer with three assumptions about the human mind. The human brain works as a system that is dual-channeled, has limited capacity, and is actively processing information. As observed in Figure 1, first information needs to be presented using words and pictures. This information is processed by sensory memory. The sensory memory briefly holds onto what has been observed and heard. Selected information is then moved to the working memory where the active learning processes must now take over if the new information is going to make the final transition to long-term memory (Mayer, 2020).

Active learning has three processes that occur to aid in moving the new information that is presented to long-term memory. The first step is selecting. Learners attend to what is being presented and the brain selects what it wants to move to working

memory. The next step is organizing the selected information. Learners then use cognitive structures in the working memory to mentally organize the information. The last stage is integration. During this process, there is an integration between cognitive structures and prior knowledge from long-term memory that is relevant to the input of new information as observed in Figure 2. This should lead to new knowledge being transferred to long-term memory. This process can occur several times during one lesson (Mayer, 2020).

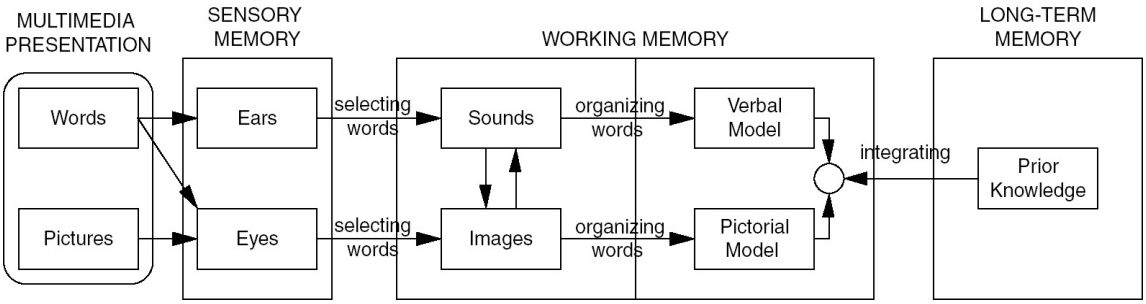

Figure 2. Cognitive theory of multimedia learning. (Mayer, 2020)

Note. From *Multimedia Learning* (3rd ed.) by R. Mayer, 2020, p. 40. Copyright 2020 by Cambridge University Press. Reprinted with permission.

For meaningful multimedia learning to occur, extraneous material should be excluded from lessons. The unneeded content causes the brain to compete against the working memory causing a distraction from the material that needs to be learned. When designing multimedia lessons, instructors need to make sure the most important things to be learned are clear for both visual and auditory processing. Instructors should avoid unneeded words and background music that do not contribute to the established end objective of the lesson (Mayer, 2020).

Richard Mayer's theory is relevant to this research study because one trademark of the MCP model is that teachers create original videos for their students to watch as part of their lessons. These videos consist of teachers orally presenting information while students attend to pictures, graphics, or words on the screen (Modern Classrooms, n.d.). According to Mayer, instructional videos with spoken and written words on the screen are an instructional format that fosters opportunities for multimedia learning (Mayer, 2020). Using the concepts associated with the cognitive theory of multimedia learning, the MCP practice of having teachers record videos aligns with best practices for helping students retain information.

Benjamin Bloom's Mastery Learning

Benjamin Bloom was an esteemed educational psychologist. In the early 1960s, Bloom began to investigate individual differences and student learning. He noted that factors outside of school impact student learning, but his studies showed that teachers can have a significant influence as well (Guskey, 2005).

When observing classes, Bloom found teachers were using whole group instruction, and not providing any instruction to meet individual needs (Bloom, 1964). The students who this was appropriate for did well, but many of the students struggled. Bloom suggested that teachers explore ways to vary their instructional practices. He advised that practices used in tutoring individuals or with small groups should be brought into classrooms so teachers can better meet all student needs (Bloom, 1964). In the late 1960s, Bloom developed a strategy that involved teachers using feedback and corrective methods (Bloom, 1968).

Bloom used the term "learning for mastery" to describe the strategy that required teachers to provide feedback to students regarding how well the learners demonstrated their understanding (Bloom, 1968). Bloom advised that teachers should use formative assessments to provide feedback to their students. This allows students to see what they have successfully learned to this point, and what they still need to work on to get to a point of mastery (Bloom, 1968). Implementing this strategy allows students the opportunity to have more opportunities solidify their learning of academic content.

Bloom's mastery learning (Bloom, 1968) aligns with MCP's component of mastery-based learning. MCP trains teachers that they should use a mastery learning approach when implementing the blended model. Students get the opportunity to revisit work they need to redo. Teachers can gather information from how students performed on mastery checks to guide their small group instruction.

Constructivism

Constructivist classrooms look different from traditional classrooms regarding the way instruction is delivered. Traditional classrooms overly rely on teaching through direct instruction of fixed knowledge without considering independent student needs. Constructivist learning allows for child-centered learning to occur, allowing students to explore and work on discovering answers for themselves. The teacher poses the questions to students and acts as a facilitator for this kind of learning. Students who are instructed using this model get the opportunity to build and construct their own knowledge (Shah, 2019).

Constructivism is the most appropriate approach for this study because using interactive videos for learning provides students with a constructivist environment. According to Zhang et al. (2006), using these videos allows for students to access curriculum at their own pace without time constraints. Students have control over the process of their learning, allowing them to construct their own meaning. MCP encompasses the use of interactive videos providing opportunities for blended learning. Students can work at their own pace to increase their understanding and construct knowledge of different academic topics. With MCP, teachers use mastery-based grading to check for understanding. Mastery-based learning helps teachers identify where individual students are struggling or excelling in the learning process of the topics being taught (Modern Classrooms, n.d.).

One of the most well-known constructivist theorists is Jean Piaget. Piaget believed that the process of learning an individual went through was just as important, if not more important, as achieving the result. Another well-known constructivist is Lev Vygotsky. Vygotsky is considered a social constructivist because he believed that knowledge is formed through the social and cultural contexts of where children live and grow up during their lives. These theorists helped revolutionize a new way of teaching. Constructivist teachers allow and encourage students to create, learn, and grow as individuals (Shah, 2019).

Jean Piaget

Lascarides and Hinitz (2011) wrote that Jean Piaget as a young man studied logic, sociology, religion, and philosophy. The area of epistemology was especially interesting

to him. Epistemology is the study of knowledge. He wanted to understand what knowledge is and how we gain it. Piaget worked with children at a French school called the Binet Laboratory by administering standardized tests. Piaget was fascinated with why the children failed the tests. He decided to attempt to study the reasoning behind the children's answers by asking them open-ended questions. This first experience with collecting data from children resulted in Piaget establishing three basic findings. First, he found that children around the same age got the same questions wrong, meaning that young children think differently than older children. Second, language abilities do not always match a child's knowledge. Piaget started assessing children by asking them to provide a verbal answer as well as manipulating the materials provided to show their thinking. Third, logic as opposed to natural language is possibly the best way to describe thought. His conclusion from his work with the French children at the Binet Laboratory was that psychology could be the link between biology and epistemology.

As Piaget continued his studies by working with young children, he developed a basic law of development stating that a "child constructs his own intelligence and knowledge through play. Children begin with exercise play, and then move to symbolic play'' (Lascarides & Hinitz, 2011, p. 129). Piaget (1926) released his book entitled *The Language and Thought of the Child.* In this book, Piaget explained his theory about how children develop language, thought, and knowledge. Piaget later developed his theory of cognitive development with four distinct phases. Piaget's work regarding his theory of cognitive stages was released in a book in the United States in 1971. Piaget's work, along with other papers presented at a symposium, was combined into a book titled *Measurement and Piaget.* As explained in this paper, the first stage is the sensorimotor

stage that occurs from birth to age 2. During this stage, children learn through their senses and learn to do physical things like crawling, walking, and running. One of the most important developmental milestones in terms of cognitive development is the concept of object permanence meaning things still exist even though they cannot be seen. The next stage is called the preoperational stage and ranges from ages 2-7. Students included in my MCP study fall in this age range. During this stage, children begin to think symbolically and start to use pictures and words to communicate meaning. Children at this stage are quickly developing in the areas of thought and use of language, but they are still very concrete learners. The third stage is referred to as concrete operational and lasts from ages 7-11 Students that were part of my MCP study all fall in this age range. Thinking at this stage becomes more logical and organized. Children learn the meaning of conservation. The final stage which begins at age 12 and beyond is referred to as the formal operational stage. During this time children develop the ability to think abstractly and theoretically. They use deductive logic or reasoning.

Piaget and Inhelder released a book in 1958 titled *The Growth of Logical Thinking from Childhood to Adolescence.* Piaget explained that there were processes individuals had to undergo to adapt to their environment and acquire knowledge. To explain the process needed for the adaptation to occur, he introduced the concepts of assimilation and accommodation. For people to successfully adapt, they need to undergo one of these processes. Assimilation is interpreting events by determining how current information aligns with existing understandings or cognitive schemas. This leads to integrating the new information in the brain with existing knowledge. Accommodation is

adjusting cognitive schemas to understand and adapt to a new situation causing a modification of existing schemas and knowledge (Netti et al., 2016).

Educators are urged to implement Piaget's work by developing a child-centered classroom. learn. It is important for teachers to remember that children learn in different ways. Giving children chances to build their own knowledge leads to more meaningful learning opportunities as opposed to telling students what they need to know and learn (Lascarides & Hinitz, 2011). Implementing MCP allows students to build their own knowledge while becoming autonomous learners in child-centered classrooms.

Piaget's theory of cognitive development is relevant to this study because the use of MCP and other blended learning models allows educators to use technology and face-to-face instruction to apply the work of Piaget. A mix of online learning and face-to-face instruction allows students to have opportunities to modify their thinking by accommodating their knowledge and thought processes. These different forms of instruction also allow students opportunities to obtain more knowledge through assimilation. As students work through the processes of assimilation and accommodation using MCP, they gain knowledge that helps to eventually progress to the formal operational stage if they are still cognitively functioning at the concrete operational stage. Research indicates that even though the formal operational age, according to Piaget, should begin around age 12; however, some adult learners have not even reached this stage (Subramaniam, 2010).

Lev Vygotsky

According to Haggbloom et al. (2002), Lev Vygotsky studied philosophy, psychology, linguistics, and sociology when he completed his law degree in Moscow. He then turned his primary focus to psychology while studying at Moscow's Institute of Psychology. After completing his studies at that institute, he focused on memory, attention, and language. As a result of his academic work and studies with children, Vygotsky proposed concepts that focused on how children learn and how their cultures and societies impact their development.

In 1978, Vygotsky released the book *Mind in Society*, which was originally written in Russian. In this book, Vygotsky explained his theory that cognitive development cannot take place in isolation from the society in which a child resides. Vygotsky's theory is referred to as the sociocultural theory of cognitive development. The premise of this theory is that human relationships foster growth through interactions with both individuals and society. These interactions allow the child to learn from parents or others in their environment. When teachers meet with their students in small groups, this interaction can occur. MCP allows students to learn from their teachers in a smaller setting. From his theory of learning from others, came the concept of the zone of proximal development (ZPD). The ZPD is the gap between what a child does and does not know. When a child is presented with something they do not know or cannot do, they can use the assistance of someone who is considered more knowledgeable. The more knowledgeable person can be an adult such as a parent or teacher, but Vygotsky realized the importance of peers learning from one another (Haggbloom et al., 2002). Teachers can implement Vygotsky's ideals in their classrooms by allowing opportunities for peer

collaboration through discussions and paired work or group assignments so students can work together on constructing their knowledge while learning from one another at the same time. Implementing MCP allows teachers to be flexible with their routines and the activities they complete. Many MCP classrooms allow opportunities for peers to work together or help one another.

Lev Vygotsky's social cognitive theory is relevant to this research study because the use of customizable online learning platforms allows students to work within their own ZPD (Chaney, 2017). These learning platforms can be used by teachers implementing MCP as part of students' individual learning paths. These advantages offered through the implementation of MCP and other forms of blended learning are why using child-centered teaching methodologies that align with constructivist approaches are important to the cognitive development of students.

Limitations

This study utilized convenience sampling. Some of the teachers participating are employed in the same school district as me. These participants may want the study to go well for me and may not be forthright with challenges they encounter.

Due to the nature of the study only focusing on kindergarten through third grade teachers that trained and implemented MCP in their classrooms, the sample size is small. As a result of a small sample size, the generalized findings may not represent all teachers' perspectives or voices on the use of MCP in early childhood classrooms. Before the beginning of the study, I contacted participants to explain the process and answer any questions. I planned to use 10 participants for all three phases of data collection. There

are only 11 early childhood teachers, one being I, in the district that live within my geographical area that implement MCP in their classrooms. The fact that I teach in the district is considered a limitation. An additional limitation is that all 10 teachers may not agree to participate in the study or meet the established criteria and the data were collected over a short period when teachers are implementing the MCP model.

Another limitation is that only one of the two groups used for the study participated in all three phases of the study due to geographical locations. I was unable to travel to all the participants' school sites.

Delimitations

To minimize the effect of a small sample size, multiple sources of data were used. Data collection consisted of an interview, observations, and a review of teaching resources.

Definitions of Terms

Blended learning: an instructional method that includes the efficiency and socialization of face-to-face learning with digital learning tasks delivered online (Dziuban et al., 2004). It can also be referred to as hybrid learning.

Child-centered: focusing on a child's needs and interests (Turner, 2006).

competency-based education: thinking about what the learner should know by the end of the unit, program, or grade and mapping instruction backward (Sistermans, 2020).

Constructivism: learning is an active process. Students need to be able to construct knowledge not just take information in passively (Thampinathan, 2022).

Differentiation: when teachers tailor instruction to meet the needs of different learners' levels (Kocour, 2019).

Direct instruction: a process of teaching which requires instructors to teach structured lessons. The instructor is guiding students through lectures and demonstrations (Al-Shammari et al., 2008).

Early childhood: Early childhood pertains to children from ages of birth to grade 3. For this study, early childhood is focused on the kindergarten to third grade range.

Elementary: The level of instruction or schools consisting of students in grades K-5. This study focuses on the early elementary years of grades kindergarten through third.

Learning management system (LMS): Online software used for the development, tracking, and reporting of educational courses (Kocour, 2019).

Learning paths: A list of predetermined assignments or activities teachers want students to complete to work on learning objectives.

Modern Classrooms Project (MCP): In this study, MCP refers to a research-backed blended, self-paced, and mastery-based learning instructional model that was developed in 2018. Participants must have undergone the official MCP training and implemented the model in their classroom (Modern Classrooms, n.d.).

Multimedia learning: Learning from pictures and words (Mayer, 2020).

Open classroom: The name given to the group used for the study that consists of early childhood educators that implement MCP not located in the same region as me.

Secondary: The level of instruction or schools consisting of students in grades 6-12.

Small group instruction: Working with a few students at a time while the remainder of the class is working on another learning task.

Student engagement: The degree of attention and engagement students are portraying while participating in lessons and completing learning tasks.

Trackers: What teachers use to visually track where students are on their learning paths when implementing MCP.

Summary

Many modern-day teachers have introduced blended learning in their classrooms. School districts are pushing support a hybrid model that uses a mix of online and face-to-face instruction in classrooms. Blended learning can look different in every classroom. MCP is a new model that some teachers have started implementing in their classrooms after completing the training offered by the MCP organization. Chapter 2 presents background information about MCP and its three main tenets-blended learning, self-paced learning, and mastery-based learning. The chapter also includes studies based on MCP that were completed at the secondary level.

CHAPTER 2

LITERATURE REVIEW

This chapter provides the literature review for this research study. Nazarenko (2015) explained that students participating in blended learning have increased the use of educational technology in classrooms today; the increased use of educational technology in classrooms has introduced many students to blended learning. Students are given opportunities to construct their own knowledge. Teachers use learning management systems (LMS) that can be customized to meet the individual needs of their students. The history and creation of MCP are discussed. Several studies are highlighted in this chapter that identify the success of MCP in the secondary settings in which the studies were completed. The chapter also outlines the three main components of MCP blended learning, self-paced learning, and mastery-based learning and the benefits associated with each.

Modern Classrooms Project

Modern Classrooms Project Research Studies

MCP contracted with the Johns Hopkins Center for Research and Reform in Education (Modern Classrooms, n.d.). In 2018, the Johns Hopkins School of Education Center for Research and Reform in Education conducted an initial survey that focused on the 2018-2019 implementation of the MCP. Wolf (2019) completed the first study with

seven teachers who implemented this model during the 2018-2019 school year. The teachers were surveyed before training, midyear, and at the end of the school year. Two hundred and thirty secondary-aged students of MCP teachers were surveyed at the beginning, middle, and end of the school year as well. Findings reported that students believed they were more engaged, they could successfully complete self-directed learning, and that their behavior had improved. Most importantly, students believed they had more individualized academic support at the end of the year when compared to the beginning of the school year. The teachers surveyed, although a small sample, reported, "statistically significant changes over time in teacher self-reports of engaging in effective classroom practices, providing academic support, and feeling like they were able to effectively serve all students and prepare their students for the future" (Wolf, 2019, p. iii).

The John Hopkins' study was completed during the inaugural school year of implementation for the 2018-2019 school year. Although the teacher sample size was small, overall, this study yielded positive findings for this newly established instructional model. The study shows positive results for students and teachers at the secondary level (Wolf, 2019). Wolf's study (2019) is different from the MCP study that was in this paper because early childhood schoolteachers and students were not included.

The Johns Hopkins School of Education Center for Research and Reform in Education conducted a second study that focused on the 2019-2020 school year. Wolf et al. (2020), completed this study consisting of comparing 28 MCP teachers in eight secondary schools in a mid-Atlantic region with 27 comparison teachers who were not using the MCP model in their classrooms. Surveys were also collected from middle and high school students; 1,097 students had MCP-trained teachers implementing the MCP

instructional design in their classes and 832 students had teachers that were not trained in MCP and were not using the blended instructional model in their classrooms. This study used data collected from teachers and students at the midpoint of the 2019-2020 school year. Teacher results show that MCP teachers felt more capable of providing differentiated instruction than teachers not using the MCP model. While there was no difference between these teachers when it came to effectively using time, MCP teachers reported that time in the classroom with students was less stressful. MCP teachers also found using the model led to better relationships with students and gave teachers more opportunities to provide individual instruction. MCP teachers also believed they had grown more professionally. Some barriers the MCP teachers reported included the time constraints for making videos and the lack of administration support when beginning to use the model.

Student responses were also mostly positive when they were surveyed. Students in MCP classes were more likely to participate in self-directed learning, showed higher levels of self-efficacy, positive relationships with teachers, and more engagement when compared to data collected from their peers in non-MCP classes. This completed study is different from the MCP study that was completed in this paper because early childhood schoolteachers and students were not surveyed for the study.

The Johns Hopkins School of Education Center for Research and Reform in Education conducted a third study like the one conducted during the 2019-2020 school year. Morrison et al. (2021), collected data at the midpoint and end of the school year. A total of 74 MCP and 27 non-MCP teachers participated in the study, and 441 students that were students of MCP teachers and 96 students that had teachers not using the MCP

instructional model participated in this study. The same surveys were used from the Wolf study conducted during the 2019-2020 school year. The results for this study mirror the results of the first two studies completed. Overall results pointed to positive perceptions by both teachers and students in the areas of learning, relationships, and engagement. The third study also yielded positive results for both students and teachers in secondary classrooms. This study is different from the proposed study in this research project since early childhood educators and students were not used for the completion of this study.

Modern Classroom Project Core Components

MCP has three core components: (1) blended learning, (2) self-paced learning, and (3) mastery-based learning. With MCP, blended instruction students access class content using teacher-created videos. Self-paced structures allow students to control the pace of their individual learning. Mastery-based learning allows students to progress to the next lesson when mastery is demonstrated (Modern Classrooms, n.d.).

Blended Learning

The use of blended learning is gaining popularity in elementary school classrooms. Modern-day blended learning allows teachers to use direct instruction in conjunction with digital technology to offer students optimal learning experiences (Macaruso et al., 2020). Blended learning is anticipated to not only be evident in some classrooms but considered the new norm as more school districts are pushing for the use of technology-focused instruction (Kocour, 2019). Blended learning allows students to participate in self-paced classwork. Evidence shows that students who participate in

hybrid learning models like blended learning excel in academics when compared to students who participate in only traditional forms of instruction (Powell et al.,2014).

History of Blended Learning

According to Pappas (2015), the birth of blended learning is credited to Sir Issac Pitman and dates to the 1840s. Pitman instituted the first courses completed through distance learning. Students of Pitman's would receive postcards with assignments and students would then complete the assigned work and send it back to Sir Pitman for feedback and grading. The next notable use of blended learning is documented as beginning in the 1960s and 1970s when employers began to train and instruct employees without requiring travel and face-to-face meetings. Throughout the 1970s and 1980s video networking and the use of LMS started to also be used in the workplace. Schools started participating in blended learning over the course of the past two to three decades. Computers, web-based learning, and the constant development of modern-day technology have created a new era for blended learning for both students and teachers.

Benefits of Blended Learning

Blended learning allows teachers the opportunity to personalize and differentiate education in a way that whole group instruction cannot. Another advantage is that teachers can work on helping students obtain satisfactory progress with their learning through competency-based models as opposed to models that restrict teachers through time-based models. Using a competency-based instructional model allows students the opportunity to understand a concept truly and deeply before moving on allowing for

higher levels of content mastery (Powell et al.,2014). Teachers who use blended learning can be more responsive to students. Teachers can immediately measure student progress with real-time results through work samples. The review of these work samples allows teachers the opportunity to provide feedback on the spot and aid students or adjust instruction as needed based on exhibited learning needs of students. Blended learning can potentially not only increase student learning, but it can help improve student engagement as well (Linton, 2018). Teachers using the blended learning model have reported an increase in student engagement, motivation, and student achievement (Henrie et al., 2015). Data have been reported that blended learning has shown to be successful at not only the secondary level in middle and high school classrooms but with younger students in early childhood and elementary classrooms (Henrie et al., 2015).

Differentiated Instruction

One of the benefits associated with using blended learning is the ability to differentiate instruction. Kocour (2019) stated, with the use of different apps and learning programs, students can work on the same subject, but teachers are allowed to differentiate instruction. This allows students to work on their individual level and progress at their own pace, which is better than whole group instruction that is provided to all students because it limits the opportunities that individualized needs are being met. With blended learning, teachers can use individual data to create learning paths that should lead to greater academic achievement. Not only are teachers able to differentiate instruction through technology, but also, they can provide small group instruction that allows for differentiated instruction face-to-face in the classroom while other students are working

on their learning paths. The use of blended learning often gives students three opportunities for differentiated instruction through small group or one-on-one instruction and online learning.

Student Engagement

Student engagement is one of the driving factors behind how teachers plan lessons. Henrie et al. (2015), expressed that teachers want to plan and present lessons that capture and sustain students' attention. Highly engaging lessons lead to higher student participation and attention while oftentimes limiting behavior issues due to off-task behavior (Henrie et al., 2015). Blended learning has a positive effect on both academic achievement and student engagement. Engagement is key to student success. Students need to not only attend lessons but also participate and engage in learning activities. Research shows that students report learning is more fun when they can interact with a device (Henrie et al., 2015). By allowing students to work through their learning paths, they are given autonomy which can help keep them engaged.

Blended Learning Models

Any teacher wanting to implement blended learning in their classroom using technology as a medium must realize it is a process that will take time. Imbriale (2013) stated that teachers need to receive professional development regarding the LMS they may be using. They also need to become familiar with the technology they have available to them and for their students to use in the classroom. Teachers also need to plan how they want the blended learning model to look in their classroom. Another thing to

consider is how to introduce students to blended learning and the new classroom routine. Students will need time to adjust to a new type of learning.

There are four models of hybrid learning under which most blended learning formats fall. Christensen et al. (2013), identified rotation, flex, a la carte, and enriched virtual model. There is a blended learning continuum associated with these models ranging from mostly online to mostly face-to-face. The rotation model gives the most opportunities for face-to-face interaction as followed by the flex model. The a la carte model is closer to mostly online according to the continuum with the enriched virtual model being mostly all online (Horn & Staker, 2014).

According to Horn and Staker (2014), the first model is the rotation model. In the rotation model, students rotate between different types of instruction. Teachers using the rotation model either tell students what they want them to do daily or provide a fixed schedule. This is the model I observed when observing MCP in five early childhood classrooms. The rotation model is the most common model used in middle and elementary schools. There are four recurrent formats used with the rotation model. The first is a station rotation. Students visit each station. The second type of rotation model is the lab rotation. Students participating in this model rotate to a lab classroom to work on their assigned online learning activities. Using a flipped classroom is the third format of the rotation model. This format consists of students learning primarily through online content provided by the instructor that is usually completed outside of class for homework most of the time. Face-to-face support and interaction can be provided in the classroom. The fourth format associated with the rotation model is individual rotation. Students using this format work through their individualized learning path on their

independent devices while rotating through face-to-face interactions with the instructor as deemed necessary.

The second model of blended learning is the flex model. With this model online work is the key component of instruction. Face-to-face instruction is limited or does not occur at all. Students usually complete this work in a school building. Some of the instruction online may have students also completing work offline. The instructor for the course is usually available to give assistance when needed making themselves flexible with their availability for students (Horn & Staker, 2014).

The third model of blended learning is the a la carte model. Students are required to complete all their assignments online. This model is different from the flex model since all work is required to be completed online. This work can be completed in school or away from school. A teacher is assigned to the class, but there may be one person assigned to help with technical issues who is not the instructor (Horn & Staker, 2014).

The final model of blended learning is the enriched virtual model. The work associated with this model has students completing work away from school. The instructor of the course may occasionally have face-to-face interactions over the course of the semester or school year, but students usually work independently and at a distance from the teacher (Horn & Staker, 2014).

Blended Learning Research Studies

Blended learning has been conducted at the early childhood and elementary level. Three blended studies are included in this paper. These studies were considered significant to my study because the participants were elementary-aged students

participating in blended learning. A study was conducted by Macaruso et al. (2020), to evaluate blended learning for students in grades kindergarten through fifth in a charter school network. The study specifically focused on using blended learning as a medium to deliver reading instruction. The study included 3,721 students in total. There were 2,217 in treatment schools and 1,504 students in the control schools. Before this study was conducted, the students in the treatment group were slightly outperformed by the control group on a standardized reading assessment. The 1,504 students continued in their standard manner of instruction serving as the control group. Students participating in the study were from similar lower SES backgrounds with similar backgrounds in ethnicity as well.

The students in the treatment group used a program called Core5. Core5 is an adaptive blended academic learning program that consists of systematic activities delivered digitally with materials provided to teachers that they could use to plan and implement face-to-face instruction. After the implementation of the program, results showed that the students who used the Core5 blended learning program showed significantly higher posttest scores than students who were in the control group. Researchers concluded that the use of this blended learning program showed promise for students from low SES backgrounds (Macaruso et al., 2020).

The Macaruso et al. (2020) study looked at the use of blended learning using the Core5 program for reading instruction. The use of blended learning in this study is like MCP because it encompasses some online learning. When implementing MCP, teachers have the choice of which curriculum they implement while using the MCP instructional model. My study looked at early childhood educators in grades kindergarten through

third grades perceptions of the use of MCP which incorporates the use of blended learning, but also incorporates self-paced learning and mastery-based grading. The Macaruso et al. (2020) exemplifies successful blended learning with young students which is part of MCP.

A second study that looked at the use of blended learning was conducted by Prescott and Associates in 2016. This study examined the use of a blended learning literacy program in grades kindergarten through fifth at an urban elementary school. The Core5 program was used with a total of 641 students. All the students used the Core5 program. There was not a control group in this study. Core5, as mentioned in the previous study, allows teachers to use both digital learning opportunities for students and face-to-face instruction by teachers. Students participating in the study took a pretest and a posttest after receiving blended instruction through the Core5 program. Results showed that students in kindergarten, first, second, third, and fifth grades made significant growth based on the scores from the posttest. Fourth grade students were the only group of students who did not show significant improvement. Results from this study show that blended learning programs can be implemented with Title 1 students at the elementary level to raise reading scores.

The Prescott and associates study (2016) also looked at the use of blended learning using the Core5 program for reading instruction. The use of blended learning in this study is like MCP because it encompasses some online learning. Teachers have the freedom to incorporate any learning program they choose when they implement MCP as they record their own videos. The difference between this study and the proposed MCP study in this paper is that teachers have the choice of curriculum they implement while

using the MCP instructional model. This Prescott and associates study (2016) was another example of successful blended learning with elementary aged students, which is part of the MCP model.

A third study was completed on blended learning by Truitt and Ku in 2018, it is a case study consisting of 31 third-grade students at a high poverty school who participated in blended learning in their classroom daily using the station rotation model during both reading and math instruction. The classroom had three stations that students would work on during math. One was with the teacher, one was independent or collaborative work that did not use technology, and the third was a group of students that worked on an LMS called Schoology. These students were given questionnaires to complete as well as participate in interviews at the middle and end of the semester. The students said they enjoyed the way the content was presented and liked working on the computer for part of their lessons. They also felt that they learned more doing the station rotation when compared to a traditional classroom setting. Another benefit was that students felt like they could always get help from a peer or the teacher. The two negative themes identified in the study were issues with technology working properly and problems with the curriculum, not the station rotation format.

This study looked at the use of blended learning in a third-grade early childhood classroom. Students participated in blended learning using an LMS program called Schoology. Schoology is an LMS and different from MCP since that is an instructional model. The study proposed in this paper allows teachers to choose what subject is taught and how it is taught using the MCP model that incorporates teacher-made videos with blended learning, self-paced learning, and mastery-based grading.

As these three studies have shown, the use of blended learning in the elementary classroom is proving to be a valuable learning model. Student growth and engagement are hallmarks of the use of blended learning; therefore, this model of instruction is part of MCP. Blended learning in the MCP instructional model uses teacher-created videos. Besides the use of blended learning, self-paced learning and mastery-based learning are also part of MCP. Currently, there are no published studies from early childhood teachers' perspectives about how MCP can be implemented in early childhood classrooms.

Self-Paced Learning and Benefits

Traditional elementary classrooms typically do not allow students the opportunity to pace or organize their individual learning (Palaigeorgiou & Papadopoulou, 2018). Self-paced learning is a method teachers can use to develop lessons that allow students to work through lessons at their own speed. This pacing allows students to slow down and review things they may find difficult while also providing opportunities for students to skip over or work quickly through things they understand (Murray, 2021). Self-paced learning is beneficial for students because they can learn anywhere and anytime if they have access to instructional materials and resources. Also, students can receive personalized help from their teachers. Additional benefits of self-paced learning are that it can reduce stress for students and increase productivity (Weng, 2015). Cognitive overload can be prevented with the use of self-paced learning since students can control their individual speed that they work through lessons (Chen, 2012). Self-paced learning

can help reduce levels of anxiety and embarrassment that can accompany learning new material in a traditional classroom setting (Zhang et al., 2006).

Self-paced learning with interactive videos is a part of the MCP model. MCP incorporates the use of interactive videos made by teachers that allows students to work at their own pace. What makes MCP different from classes that incorporate videos and self-paced instruction is the inclusion of mastery-based learning. MCP requires teachers to create videos with the use of blended learning, where some classes using self-paced learning are solely online with no mix of in-person learning (Modern Classrooms, n.d.).

Growth vs. Fixed Mindset

"Growth mindset is defined as a belief that construes intelligence as malleable and improvable" (Dweck, 2012, p.7). Students who exhibit a growth mindset value effort (Hochanadel & Finamore, 2015). The idea behind growth mindset is willing to learn and move forward after setbacks (Duckworth, 2007). Students exhibiting a fixed mindset are not as flexible.

Students who believe that intelligence is inherited and cannot be changed exhibit a fixed mindset (Hochanadel & Finamore, 2015). Students with a fixed mindset do not like challenges, can be overconfident, and avoid challenges. These students do not exhibit the same grit as students that demonstrate a growth mindset (Duckworth, 2007).

MCP incorporates the idea of self-paced learning. This allows students to learn in a new way when compared to whole group instruction. Students with a growth mindset are willing to accept this new type of learning and complete the assignments without issues. Using MCP, students become autonomous learners who grow from their mistakes

when teachers work through mastery checks with them. Students exhibiting a fixed mindset learn flexibility with MCP because there are required assignments to complete and accountability with the use of trackers. Fixed mindset students in an MCP class need to apply themselves to their work, even if the work is challenging, so they do not have to constantly work on completing mastery checks with the teacher.

Self-Paced Learning Research Studies

Palaigeorgiou and Papadopoulou (2018), conducted a study with fifth and sixth grade elementary school students in Greece to determine if learning environments that use interactive videos and self-paced learning would be a good model for other elementary classrooms to use. To collect data, students were given a pretest and a post-test to determine how well they understood the concepts of the transfer of heat by conduction and convection. Once the final session was completed, all students were also given a questionnaire that had 15 Likert-scale questions to measure their perceptions and satisfaction with the learning environment, interactive elements of the videos, and the value of the interactive videos and learning setting. The four teachers of these students filled out a teaching assessment questionnaire. Results showed that students' pre-test scores were low and after participating in lessons that allowed students to learn at their own pace, there was a significant rise in the post-test scores. When I reviewed the data from the Likert-scale questions, they found that the elementary students responded positively to the three variables of satisfaction, video value, and attitudes regarding the learning approach. The participants believed that using videos and self-paced learning

worked well with their students. They particularly noted that they saw some students who were often difficult in class do a better job of working quietly and showing dedication.

The Palaigeorgiou and Papadopoulou (2018) study showed that elementary students successfully learn from the use of interactive videos and self-paced learning. The use of videos and self-paced learning in the study are like parts of the MCP instructional model. The differences are that MCP uses teacher-created videos, not just any video. Also, the third part of MCP is mastery-based learning before moving to the next topic (Modern Classrooms, n.d.). In the study, students were only given a posttest after the lessons. There was no opportunity to revisit topics and try again if the students were not successful on the first try.

Another study on self-paced learning at the elementary level was conducted in Indonesia by Astuti et al. (2022). In the study, fourth and fifth graders participating in Islamic Religious Education through self-paced learning were observed and their learning outcomes were reviewed. The headmaster and teachers were interviewed. Students watched videos and completed learning activities. For an evaluation, students had to take tests to demonstrate knowledge gained as well as recite prayers and scripture. Data collected found that students liked the flexibility, and the students reported that they understood topics better because they could repeat videos and lessons if needed. Scores showed that students were successful with learning outcomes. Few students needed remediation. Teachers felt like they could be more creative and develop ways to present academic content in interesting formats. The issues reported in this study were that the terrain of the geographic area impacted the internet quality that was available and not all students had access to devices needed for self-paced learning.

A research article by Astuti et al. (2022) also highlighted the positives of the use of self-paced learning, which is part of MCP. When comparing this study to using MCP, teachers did not create videos for students to view while working on their assigned lessons. Teachers did not use mastery-based grading when assessing students. Similarities to MCP were the use of some type of video and the opportunity to partake of self-paced learning (Modern Classrooms, n.d.).

Mastery-Based Grading

Murray (2021) explained when students are working through a unit, teachers need to have assessments along the way to check for understanding. Brief, formative assessments are useful because they provide teachers with insight regarding student understanding, and teachers can make the evaluation short and easy to check for accuracy. Teachers using the mastery-based grading system require students to demonstrate mastery of material that has been taught prior to moving on to the next lesson. Students who are unable to show mastery could practice revision. Revision is an important part of mastery-based grading. During the revision period, students can review past assignments, work with the teacher, or complete other assignments that will eventually help that student reach mastery. Linhart (2020) stated,

> Mastery-based testing is a system in which students are tested (and retested) on learning objectives for the course…and then are graded primarily by the number of learning objectives that they can master over the course of term. Students are thereby encouraged to learn from their mistakes (possibly also to embrace growth mind-set), since there are multiple opportunities for success, and the one thing that truly matters is mastery by the end of the term (p. 1087).

According to Linnenbrink and Pintrich (2002), using mastery goals with middle school students leads to the use of better cognitive strategies and self-regulation. Students showed greater autonomy and motivation when they could work at their own pace and are given the opportunity to revise work.

Mastery-based grading is part of the MCP model. MCP incorporates the use of mastery-based grading in conjunction with blended learning consisting of teacher-created videos and self-paced learning (Modern Classrooms, n.d.). Mastery-based learning is a good method for teachers to use to make sure students are fully understanding concepts that are taught before moving on to the next topic.

Mastery-Based Grading Movement

Mastery-based grades clearly allow educators and parents to decide what a student has and has not learned in a more precise way when compared to a letter grade. The idea of mastery-based learning has caused many school districts to begin to use standards-based report cards. Westberry (2019) explained that teachers and entire schools are starting to adopt mastery-based learning and standards-based grading. The use of this grading method is an attempt to address achievement gaps and streamline the grading system. Some districts are using standards-based report cards which require students to show mastery of different standards that fall under one academic area. A student gets several grades for one subject instead of just one. Implementation of mastery-based learning can reduce fear and improve motivation and attitudes among students

(Westbury, 2019). When students are given the opportunity to try something again instead of just failing, they can exhibit higher student engagement (Westbury, 2019).

Gaps in Existing Knowledge

As evident with the studies on MCP that were completed above, there is a lack of empirical research at the early childhood level. While early childhood schoolteachers are participating in MCP training and implementing the model in their classrooms, no published studies have looked at the perceptions, attitudes, and beliefs of the use of MCP according to early childhood schoolteachers. This study provides insight into how effective kindergarten through third grade teachers believe the MCP model is within their classrooms. My study provides insight into how kindergarten through third grade teachers perceive the usefulness of the MCP model in their classrooms.

CHAPTER 3

METHODOLOGY

The purpose of this chapter is to introduce the approach and methods used for this qualitative case study. I outlined methods employed for the study and justified why case study was the best approach for answering the research questions that follow.

Main Research Question

How do early childhood educators perceive the use of the Modern Classrooms Project in their classrooms?

Sub-Questions

What are early childhood educators' beliefs/attitudes regarding the Modern Classrooms Project in their classrooms?

What factors impact early childhood educators' use of MCP in their classrooms?

What are early childhood educators' perceived barriers to the implementation of MCP?

Research Design

The research design for this study is classified as qualitative. The foundation for the research conducted was my desire to gauge how early childhood educators perceive MCP in their own classrooms. This instructional model allows teachers to use blended learning that incorporates self-paced learning and mastery-based learning which allows

for both differentiation and small group or individualized instruction for students. The information gathered through semi-structured interviews and observations provided data on early childhood teachers' perceptions of MCP. Using a qualitative design, I collected, organized, and coded the data to understand how early childhood educators perceived the use of MCP in their classrooms (St. Pierre & Jackson, 2014).

Qualitative research is, "the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem" (Creswell, 2007, p.37). When conducting a qualitative study, Creswell (2007) and Braun and Clarke (2012) refer to the four following steps: (1) data is collected in the natural environment, usually using multiple sources; (2) I analyze collected data and creates themes; (3) the final report should represent the voices of participants and serve as an explanation of the problem and interpretation of the problem being investigated; and (4) the final stage should be for contributions of findings to add to the body of literature and provide implications for action that needs to be taken.

Research Methods

Creswell (2007) outlines five different approaches that can be used by researchers when completing a qualitative inquiry, including (a) narrative, (b) phenomenological, (c) grounded theory, (d) ethnographic, and (e) case study. I used the case study method for this study. Case study "research involves the study of an issue explored through one or more cases within a bounded system (Creswell, 2007, p. 73). Case studies are bounded by activity, time, event, process, or individual (Creswell, 2007). For this study, the case

included two groups with teachers trained in the MCP model who have implemented it in their classrooms.

According to Creswell (2007), researchers conducting a case study identify what is to be studied and then decide on what sources of information will be used for data collection. For this study, three sources of information were used: interviews, observations, and review of learning resources such as lesson plans and student learning paths. Once data were collected I analyzed this data to determine themes that led to the interpretative stage of the study (Creswell, 2007). According to Lincoln and Guba (1985) and Denzin and Lincoln (2003), the interpretative stage of the study can be considered the lessons learned from the case study. I used the established themes to develop an answer to the established research questions regarding how early childhood educators perceive the use of MCP in their classrooms.

Philosophical Assumptions

According to Creswell (2007), philosophical assumptions are my viewpoint. A worldview in qualitative studies is my beliefs that guide the actions of the investigation. Creswell (2007) described the following worldviews in qualitative research: (a) pragmatism, (b) social constructivism, (c) transformative, and (d) positivism/postpositivism.

In this study, I applied the framework of the pragmatism worldview. Pragmatism is when "the focus is on the consequences of research, on the primary importance of the question asked rather than the methods, and on the use of multiple methods of data collection to inform the problems under study" (Creswell & Plano Clark, 2018, p. 37). I

centered this study around the use of MCP in early childhood classrooms. I wanted to address the problem that there was a lack of research conducted with early childhood educators to determine how they perceived the use of MCP. Early childhood educators were getting trained and implementing this model without research indicating if early childhood educators believed it was appropriate for early childhood students. The pragmatism worldview is problem centered. I employed several methods to collect data: interviews, observations, and review of learning material. The pragmatism worldview consists of the use of multiple methods. This study looked at the real-world practice of using MCP in early childhood classrooms to educate students; the pragmatism worldview is real-world practice oriented (Creswell & Plano Clark, 2018).

According to the pragmatism paradigm, the ontological question regarding the nature of reality is based on singular and multiple realities. These realities all differ and are considered unique because they come from multiple perspectives (Creswell & Plano Clark, 2018). I interpreted early childhood educators' perceptions of MCP in their classrooms. I could understand the teachers' experiences by talking to them through a video. Meeting in this manner allowed me to have multiple perspectives as part of this study.

Epistemological questions under the pragmatic worldview focus on practicality. The "researchers collect data by 'what works' to address research question(s)" (Creswell & Plano Clark, 2018, p. 38). What worked for this case study was the collection of data from practitioners who have implemented MCP in their classrooms. I asked participants how MCP works for them in their classrooms. I was able to identify what works for early

childhood educators when implementing MCP by observing it in action in their classrooms.

Data Collection Procedures

The purpose of the study was to look at the perceptions, attitudes, and beliefs of early childhood educators regarding the use of MCP in early childhood classrooms. The following are the data collection procedures for this study.

Research Population and Sample

The population of this study was comprised of kindergarten, first, second, and third grade teachers who are implementing MCP in their classroom. The sample for this study included educators working in elementary schools, grades K-3 in a school district using the MCP model and in an open classroom. There were two groups of participants for the study. The first group was comprised of participants in the school district where I work and had participated in all three phases of data collection, as follows: (a) interview, (b) review of learning resources, and (c) observation. The second group consisted of early childhood educators who used MCP and were recruited through social media. This group was recruited outside of my school district and was referred to in this study as an open classroom group. According to a representative from MCP, only 4% of all participants that have completed the online MCP training are early childhood or primary grade educators (E. Persons, personal communication, March 19, 2024).

Eligibility Criteria

This study is considered a case study because it is bound by the established criteria that participants must (a) be early childhood educators that teach in grades kindergarten, first, second, or third; (b) have completed the MCP training; and (c) have implemented the MCP approach in their classrooms.

Research Setting

The school district for the first group used in this study was in the Southeast in the same geographical area as me. The district was referred to as Silver Springs City Schools, a pseudonym. The Silver Springs City School District was selected for this research study because it is the only district within the state that has early childhood teachers who have completed the MCP training and are currently using the MCP approach in their classrooms. Silver Springs City Schools is a public school district with 18 schools and approximately 13,600 students. According to the school district's website, the student body of the district is 55% White, 23.5% Black, 7.2% Asian or Asian/Pacific Islander, 8.5% Hispanic/Latino, 0.1% American Indian or Alaska Native, 0% Native Hawaiian or other Pacific Islander, and 5.8% of students are two or more races. In the district, 16.7% of students are eligible to participate in the federal free and reduced-price meal program and 18.7% of students are English language learners.

There are only 11 early childhood educators in the Silver Springs School District implementing MCP, including me. Of those 11, only seven met the criteria. Three of the teachers implementing MCP did not attend the online training. These teachers are copying what a teammate is doing in their classroom. One teacher did not respond when

asked if she was willing to participate. I worked with six early childhood educators in the district that implemented MCP and completed the interviews, observations, and I reviewed their learning materials. Pseudonyms were assigned to all participants and sites.

Silver Springs City Schools had two groups of elementary and secondary teachers who completed MCP training in the summer of 2022. Most of these teachers implemented this learning model during the 2022-2023 school year. Only those in elementary grade levels kindergarten through third grade participated in this study. For teachers to be eligible, they must have completed the online MCP training, and have implemented it in their kindergarten, first, second, or third grade classrooms.

To increase the participants of the study, I interviewed early childhood teachers who implemented MCP from other schools in different regions, referred to as the open classroom. I interviewed two early childhood educators from different school districts. The total sample size was eight participants.

One of the participants, Molly, who taught kindergarten, was recruited from a Facebook group from a school in the northern Midwest. Molly's school district covered seven cities with about 120,000 students. Seven of the 11 elementary schools in this district served a high percentage of disadvantaged students.

The other participant, Maria, recruited from a Facebook group, was from an urban elementary school in a large city located in the Midwest. This school district had just over 320,000 students. According to collected data, 70.7% of the students in the district were considered disadvantaged, and 24.7% of the students were learning English. Maria taught in a bilingual first grade classroom. Half the day students spoke Spanish, and the other half of the day the students spoke English.

Sampling Procedures

This study used convenience and purposive sampling. Convenience sampling can be defined as "a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for I to access" (Nikolopoulou, 2023, para. 1). All teachers who met the criteria were purposefully recruited for the study. I contacted technology coaches assigned to elementary schools in the Silver Springs City School District who helped identify which teachers fit these criteria, so I knew whom to contact. I then contacted possible participants who met the study criteria through email.

Purposive sampling was used when recruiting teachers for the open classroom. Purposive sampling is when "units are selected 'on purpose' in purposive sampling" (Nikolopoulou, 2023, para. 1). For the open classroom sample, I posted two requests on two MCP Facebook pages, Modern Classrooms Project – Teacher Discussion and Modern Classrooms Project – Early Elementary, asking interested participants to email me. Participants were chosen based on meeting the criteria set forth (Hatch, 2002). These participants were purposely selected since they reached out to me expressing that they met the criteria and were willing to participate.

Recruitment Procedures

Silver Springs City School District Participants

The school district is a local district in which I am currently employed. The gatekeepers for the Silver Springs City School District are the district-level chief learning officer, district-level technology coordinator, and school-level technology coaches. Consent was obtained from the chief learning officer to conduct the study with teachers

in the district. I received a consent letter from the district chief learning officer (See Appendix D) stating this study could be conducted within the district pending Institutional Review Board (IRB) approval. The district technology coaches identified early childhood teachers who met the criteria to participate.

Facebook Group Recruitment Procedures

Teachers who are part of the open classroom group were recruited through Facebook. I recruited participants from the Modern Classrooms Project – Teacher Discussion and Modern Classrooms Project- Early Elementary Facebook groups. As of March 2024, there are 17,600 members in the Modern Classrooms Project – Teacher Discussion Group, and 164 members in the Modern Classrooms Early Elementary Group. I publicly posted a recruitment message on each of the groups' home pages asking for participants. I repeated this process a second time to gain more participants. Willing participants were asked to share their email addresses for communication purposes to gain consent, schedule an interview, and complete member checking. Consent forms were signed and returned; then, I scheduled an online video call to conduct the interviews.

Data Collection Instruments and Procedures

Data were collected in three phases. First, I completed interviews with each of the participants. The interviews were used as the primary source for data collection. Second, I observed teachers implementing MCP in their classrooms. Third, I reviewed learning

resources. Observations and review of learning resources were used to authenticate interview answers.

Interviews

The first method used to collect qualitative data were the teacher interviews (Appendix B). This instrument was used in the Survey Findings for the 2018-19 Implementation of the Modern Classrooms Project by Dr. Wolf (2019), The Modern Classrooms Project: Survey Results for the 2019-20 School Year completed by Wolf and two colleagues (2020), and The Modern Classrooms Project Evaluation Results for the 2020-2021 School Year report completed by Dr. Jennifer Morrison and colleagues (2021). The interview questions had been used with secondary teachers in three previous studies. A member of the MCP research team has given permission for the instrument to be used (Appendix E). I added questions 18-20 to the original teacher interview protocol used in the studies completed with secondary teachers. Question 18 was added to allow teachers the opportunity to share barriers they have encountered while using MCP. Questions 19 and 20 allowed teachers the opportunity to opt in for a classroom observation. Only teachers residing in my geographical area were asked questions 19 and 20 regarding consent for an observation since I was unable to travel other participants' locations.

Prior to the interview, the early childhood educators who agreed to participate were emailed a copy of the questions. Then the interviews were conducted through Google Meet where the conversations were recorded and used for transcribing. One teacher preferred to type the answers to the questions. The interview questions were divided into sections that included: teacher demographics, MCP training, MCP

implementation, teacher and student impact, and overall perceptions of MCP. The interviews lasted thirty minutes to one hour with each participant. Participants that completed all three phases of data collection were given a $10 Amazon gift card.

Review of Learning Resources

The second method of data collection was the review of learning resources which consisted of lesson plans and learning paths. I chose to select these resources to review because they were the most significant learning materials the teachers used to educate their students. This step of data collection was only with participants in the Silver Springs City Schools district. One of the materials was the teacher's lesson plans. Participants were asked to email their lesson plans to me prior to the classroom observation. I reviewed these lesson plans to determine how the teacher documents her use of MCP. There was a section of the MCP Observation Protocol (Appendix C) that I recorded if the intended lesson was evident using the MCP model.

When in the classrooms, I looked for things like blended learning, teacher-made videos, small group instruction, self-paced learning, and mastery checks. I made notations on the observation protocol if the intended lesson was observed during classroom visits using the MCP model. I reviewed the learning paths the students were assigned to work on while I was in the classroom. I wanted to determine if the material presented in the students' learning paths aligned with the lesson plans. There was a section of the MCP Observation Protocol (Appendix C) that I recorded if the learning path using the MCP model aligns with what the teacher wants the students to learn during

their self-paced learning. During classroom visits, I made notations on the protocol if the learning path aligned with what the teacher wanted students to learn was observed.

Classroom Observations

The third method of data collection was the completion of classroom observations. Jamshed (2014) stated that observing is a good supplement to interviewing because I can compare the codes and themes drawn from the observation with findings established through the interviews. This data collection step was used only with participants in the Silver Springs City Schools district. I conducted observations once during either math, reading, or social studies instruction in five of the classrooms of the teachers who completed the interview with me. One educator in this district was still in the beginning stages of MCP with her kindergarten class this year and was not ready for her students to be observed. The observations lasted 20-30 minutes. I used the MCP Observation Protocol (Appendix C) to record what was observed. The protocol has sections that allowed for descriptive notes about what was happening in the classroom and reflective notes about the researcher's learnings and experiences (Angrosino, 2007).

Sara's Third Grade ELA Class

I observed Sara's class in the morning during their English Language Arts block. The students were learning context clues and irregular plurals. MCP implementation in this classroom allows for flexibility. Students were coming in and out of the classroom for different services. When students returned, they knew exactly where to pick up with their work. All the students were working independently and were engaged, except for one student, who the teacher had to pull to work beside her. The students in this

classroom were able to self-pace. Using mastery checks, the teacher was able to identify misconceptions and differentiate instruction by pulling students to her table to work on the skills they needed help with as evident in their work. She also had some groups she met with to work on skills appropriate for that group. The teacher also provided time between groups for students to come and ask questions.

Katherine's First Grade History Class

I observed Katherine's classroom in the morning. Her class was working on a social studies lesson about Alabama history. MCP implementation in this classroom allows for students to work independently. All the students were engaged and able to self-pace to work at the speed that was appropriate for them. Students were seated around the room at tables and some students were seated at the counter. When a student said they were not sure about something the teacher told the student to go back to the video online. The teacher worked with students in a small group so she could help meet their needs. The teacher also had time between groups to walk around the room to ensure all students were on task and did not have any questions. The students worked quietly and did not ask the students many questions. During the observation, it was obvious students were accustomed to the routine. Students were able to navigate their learning paths and the assigned activities independently.

Leslie's Kindergarten ELA Class

When I first arrived in the class the students were completing carpet time with their teacher. The students worked on phonics, phonemic awareness, and practiced

spelling and reading a new high-frequency word. The students then each received their folder with work in it and went to their seats the tables in the classroom. Students in this classroom were able to self-pace and work at the speed that was appropriate for them. All the students were engaged and able to work independently. The teacher was working with students one-on-one to assess their sight word knowledge. This teacher does not use recorded videos with her kindergarten students. Although no blended learning was observed during this time, the teacher did report that on other days the students receive differentiated instruction through activities the teacher assigns through the Seesaw LMS.

Laura's Third Grade Math Class

When I first walked into the room, I saw some students working on their Chromebooks, some students playing math games with a partner, and other students working with the teacher in a small group setting at her table. Students working on their Chromebooks were completing lessons based on using patterns to multiply. The working noise did get loud at one point and Laura reminded her students of how loud their volume should be when working with a partner. The way Laura arranged MCP in her classroom allowed for students to work independently and track their own scores. All the students were engaged. The students in this classroom were able to self-pace. Using mastery checks, the students were able to find out what their next steps were and if they needed to meet with the teacher. If students needed to meet with Laura because they had two low scores on their trackers, they would sign up virtually on a document that was posted on the board.

Charlotte's Third Grade Math Class

When I walked into the classroom, the students were working on their Chromebooks. They were completing a lesson based on using properties to multiply. The students were working independently, quietly, and were very engaged. The MCP arrangement of this classroom allows for students to work independently and track their own mastery. The students in this classroom were able to self-pace. Using mastery checks the students were able to find out what their next steps were and if they needed assistance from the teacher. The teacher was able to walk around and help the students as needed. Instead of small groups, Charlotte was walking around helping students on an individual basis. When students completed their tracker sheet for the day, they were able to choose a challenge activity and quietly work with peers in the class.

Data Analysis Procedures

After data were collected from the interviews, observations, and learning resources the analysis process began. According to Hatch (2002), analyzing data is a systematic search for meaning. Hatch identified five models that can be used to analyze qualitative data. These models include polyvocal, political, interpretive, inductive, and typological. I followed an inductive model to analyze the data that was collected. Creswell (2005) explained inductive analysis as moving from detailed data to general with codes and themes.

Creswell (2013) lays out six steps for completing an inductive analysis by coding data. First, I must get a sense of the data by reviewing transcriptions and documents and making notes of ideas as they come to mind. Second, he suggests to read through a few documents to get a sense of what the participant is talking about and record a few words

in the margin that expresses the underlying meaning. 3. Begin the coding process. I first identified text segments which are sentences or phrases that relate to one code. Codes are labels assigned to a portion of the text. 4. Make a list of all the codes and combine like codes while also eliminating redundant codes. 5. Use the developed codes and return to the documents used for data collection to decide if these codes fit the data and if any new codes emerge. Creswell (2005) suggested that I identify and mark any specific quotes that support the codes that have been compiled. 6. Reduce the list of codes into themes. Themes come from codes and can be the most frequently discussed data, things that are surprising, or things that are unique. Recurring themes contributed to the development of a theory based on the evidence collected. These themes link different categories to develop the overall theory from the data (Creswell, 2013).

Analysis of Interviews

First, I prepared the data for analysis. I acquired the transcriptions from the interviews. The transcriptions were generated from Google Meet which has a transcript feature that I used. To check the accuracy of the transcription, I compared the transcription to the video recording. I then organized data into computer files. Member checking was implemented by returning the compilation of the information collected during interviews to the teachers by email to check for completeness and accuracy.

I printed each transcription and then read through the collected data to get a sense of the data. Next, I read through the transcriptions and observation forms to get a sense of the underlying meaning and make notations regarding the most important ideas from each

document. While reading the material, hand analyses of the qualitative data were completed. I used color coding.

This process allows me to make sense of the data collected, separate it into segments and assign codes to the segments. First, I reviewed assigned color codes to identify text segments that relate to a single code. I read and reread the interviews, to identify repetitive phrases that capture participants' voices. Codes that represent the participants' actual words are referred to as *in vivo codes* (Creswell, 2005). I used *in vivo coding.* I used rich descriptions by including individuals' exact words in Chapter 4 to describe findings. I first used open coding to generate codes based on emerging categories from the data. The next step used was axial coding to select one of the categories and place that category within the theoretical model (Creswell, 2005). Once I coded all the text, they made a list of the codes and grouped similar codes and eliminated overlapping or redundant codes. Next, I took the list of codes collected from the interviews relating to MCP and did a preliminary organization of the codes to see if any new codes appeared. Then, I reviewed the teacher interviews to determine if there were any direct quotes from the interviewed teachers that supported the established codes. The final stage was to compile codes into broad themes. Themes represented the major ideas and what was most frequently discussed during interviews and observed in the classrooms. Subthemes, which are considered minor themes, came from capturing the voices of the participants (Creswell, 2013). Subthemes were clustered and each one was related to one of the themes.

I reviewed established themes from two dissertation committee members. These themes established by me from the interviews were used as a guide to describe early childhood teacher perceptions of MCP.

Analysis of Observation Protocols

I completed a review of observation protocols using the constant comparative method until theoretical saturation was achieved. The constant comparative method is when collected data are sorted into categories. When additional information is collected the new information is compared with emerging categories (Creswell, 2005).

Data from the observations were compared to highlight any confirming or contradicting codes (Stake, 1995). To complete the analysis of the observations, I applied Creswell's (2005) six steps of data analysis. I used the same process that was used for the interview analysis. 1.The first step was for me to reread all the observation protocols to get a sense of the whole of what was observed in the classrooms. All this information came from the MCP Classroom Observation Protocols (Appendix C) that was completed in each classroom. 2. I then looked at the observation protocols and in a few words made note of the underlying meaning. 3. I then started the coding process. I carefully reviewed each observation protocol and identified text segments assigning codes to these segments. When reviewing the protocols I was able to assign codes relating to the areas of the observation and the use of the MCP components- blended learning, self-paced learning, and mastery-based learning. 4. After assigning all the codes, I reviewed the codes to ensure there was no redundancy and that similar codes were grouped together. 5. I organized the codes and compared them to the data collected using the observation protocol to determine if any new codes emerged. 6.The last step of data analysis using the

observation protocols was the reduction of codes into themes. The themes established from the observation protocols and interviews were compared to identify themes that are similar and different. I took the themes established from analyzing the interviews and compared them to the themes that developed from the analysis of the observation protocols to complete the constant comparison process.

Analysis of Learning Resources

I analyzed learning materials using the constant comparative method until theoretical saturation was achieved. Data from the review of learning materials were compared to highlight any confirming or contradicting codes (Stake, 1995). To complete the analysis of the observations and learning materials, I again applied Creswell's (2005) six steps of data analysis. I used the same process that was used for the interview and observation analyses. The first step was for me to reread the sections of the protocols related to learning resources to get a sense of the whole of what. I looked at the learning resources to discover what teachers wrote in their lesson plans, and what teachers chose to place in the students' learning paths. All this information came from the MCP Classroom Observation Protocols (Appendix C) that was completed in each classroom. I then looked at the protocols and, in a few words, made note of the underlying meaning. I then started the coding process. I carefully reviewed each observation protocol and identified text segments assigning codes to these segments. When reviewing the protocols I was able to assign codes relating to the areas of lesson plans, learning paths, and the use of the MCP components- blended learning, self-paced learning, and mastery-based learning. After assigning all the codes, I reviewed the codes to ensure there was no

redundancy and that similar codes were grouped together. I organized the codes and compared them to the data collected using the observation protocol to determine if any new codes emerged. The last step of data analysis using the protocols was the reduction of codes into themes. The themes established from the observation protocols and interviews were compared to identify themes that are similar and different. I took the themes established from analyzing the interviews, observations, and compared them to the themes that developed from the analysis of the observation protocols to complete the constant comparison process. I used the information to develop an overall theory regarding the use of MCP in early childhood classrooms.

Cross-Theme Analysis

A cross-theme analysis allows a researcher to identify common themes across various cases or different types of data collection (Thompson & Hill, 2012). I conducted a cross-theme analysis after all data was collected and analyzed to find the core themes of each process of data collection. Themes that emerged from the interviews, observations, and learning processes were compared to determine if the themes aligned or any new themes appeared.

Research Credibility and Transferability

The interview data was used as the main source of data collection for this study. The observations and review of learning resources were completed to authenticate interview responses. Using these two additional forms of data collection added validity to the study. Member checking was also used to add validity to the study. (Creswell, 2005). I summarized the interview transcriptions and sent that by email to the participants.

Participants were told that was the information that would be used for the study asked to reply if any of the information was not correct or if they needed to clarify something (Appendix I). Inter-rater reliability was completed in my study by reviewing themes established from the data analyses with two experienced members (Creswell, 2009). Due to a small sample size, the findings in this study are not transferable and cannot be generalized to a broader setting. Readers will have the opportunity to determine the transferability of this study to other settings with similar characteristics.

Ethical Considerations

Research Approvals

Prior to obtaining permission from the University of Alabama at Birmingham's Institutional Review Board (IRB), I sought permission from the gatekeepers of the study for the Silver Springs School District. For this study the gatekeepers were the district-level chief learning officer, district-level technology coordinator, and school-level technology coaches to protect the confidentiality and protect identity of participants and sites. Consent was received to work with early childhood educators who implement MCP in their classrooms from the Silver Springs School District (Appendix D). I contacted school building administrators, so they were aware of observations occurring within their building. Teachers were informed of their right to confidentiality. Any form of identifying information was replaced with a pseudonym. Participants that completed all three phases of data collection were given a $10 Amazon gift card.

Maintaining Confidentiality

Participant emails were stored in my Google email box which is password protected. Online interview appointments were set using only the participants' first and last initial. All collected data were saved using participants' initials only.

Data Management and Storage

All data collected from participants were saved in my Google Drive which is password protected. The laptop used for data collection was password protected. Any data that was printed by me was stored in a locked cabinet.

Role of Technology Coaches

Technology coaches' role is to introduce teachers to MCP. Once teachers begin their online training, these coaches need to be available to help educators as they complete their professional development. When the time comes for teachers to implement MCP in their classrooms, technology coaches can model how this looks in the classroom. Technology coaches can also be available to help students navigate learning paths and technology while the teachers are in the process of setting routines and showing students how to use their devices to access their paths. These coaches can also instruct teachers during the school year on different technology resources that can be incorporated into their classrooms learning paths. Technology coaches can be beneficial to teachers implementing MCP, especially when they are first trying MCP.

Researcher's Role and Positionality

I used a pragmatic worldview when collecting data and information from participants about an instructional model used in the classroom (Creswell, 2007). I acknowledged my personal lens as an early childhood educator who currently uses MCP. I am employed as a teacher in the same school district where all three parts of the study were conducted. I am a member of both MCP Facebook groups. I attempted to shelve all personal beliefs regarding her opinion of the use of MCP to avoid bias while gathering data. To maintain neutrality, I refrained from expressing personal thoughts or opinions during the interview and observation phases of the study.

Summary

This study aimed to explore early childhood educators' beliefs and perceptions of MCP in their classrooms using a case study approach. I collected data through interviews, observations, and review of learning resources. Eight teachers who have completed MCP training and were implementing it in K-3 classrooms were purposefully selected to participate in the study. Data were analyzed using codes and themes. Data were compared from the observations and review of learning materials with the interviews to highlight any confirming or contradicting themes (Stake, 1995). Data results and findings are reported in the next chapter.

CHAPTER 4

FINDINGS

In this chapter, results from the interviews regarding early childhood teachers' perceptions, attitudes, and beliefs of the use of the MCP in kindergarten through third grade classrooms are discussed and compared. Results from classroom observations and the review of teacher resources are also discussed.

I used Creswell's (2013) six steps for completing an inductive analysis to review the collected data. I identified three overarching themes across eight interviews. The themes were derived from interview transcripts, learning resources, and classroom observations.

Participants

There were a total of eight participants. Six of the participants were from the Silver Springs City School District and recruited through email. The other two participants were from the Facebook groups. I reached a point of saturation with the participants that completed the consent form and interviews.

The first interview question asked participants to describe their teaching experience and how long they have been using the MCP model in their classrooms. Two of the teachers have been teaching for four years. The other six teachers have been teaching for at least 11 years, with one teacher having 22 years of teaching experience.

All the participants have implemented MCP with early childhood students for at least one year. Pseudonyms are used in place of participants' names and school names. (See Table 2.)

Table 2

Study Participants' Background Information

Grade Level	Kindergarten	Kindergarten	Kindergarten	First	First	Third	Third	Third
Name	Molly	Leslie	Amy	Katherine	Maria	Sara	Laura	Charlotte
Ethnicity/ Race	White/ Caucasian	White/ Caucasian	White/ Caucasian	White/ Caucasian	White/ Hispanic	White/ Caucasian	White/ Caucasian	White/ Caucasian
School Name or Location	General Education Classroom-State 1	Silver Springs City School District-Valley Elementary	Silver Springs City School District-Wood Park	Silver Springs City School District-Valley Elementary	Bilingual Classroom-State 2	Silver Springs City School District-Crestwood	Silver Springs City School District-Mountain View	Silver Springs City School District-Mountain View
Years of Teaching Experience	11	20	20	19	4	22	4	17
Number of Years Using MCP	2	2	1	3	2	1	3	2

MCP Educators' Interviews

Each participant was asked the first 18 questions of the Teacher Interview (Appendix B). Participants living in the same geographical region as me, the Silver Springs City School District, were asked questions 19 and 20 regarding their willingness to allow me to conduct an in-class observation of MCP implementation with their students. The interview protocol was divided into seven sections: (1) Teacher Background, (2) Modern Classrooms Training, (3) Modern Classrooms Implementation,

(4) Teacher Impact, (5) Student Impact, (6) Overall Perceptions of MCP, and (7) Observations. Five of those seven sections are outlined below. Participant responses for five of those seven sections are outlined below.

Modern Classrooms Training

Questions 2-4 were related to the MCP training and professional development. Participants were asked if they felt prepared to implement MCP effectively when they started, what supports were most helpful when implementing MCP, and what professional development may still be needed to help improve MCP implementation in their classrooms.

Six of the teachers felt prepared to implement MCP after completing the training. Amy and Charlotte did not feel confident after completing the training and said that working with school technology coaches helped them feel confident with implementing MCP. Molly, Katherine, Maria, and Sara found the MCP mentor assigned to them during the training to be helpful. School tech coaches were found to be helpful according to Katherine, Sara, Charlotte, and Laura. Amy said her mentor would have been more helpful if she were an early childhood educator as opposed to an upper-grade elementary teacher.

In terms of additional professional development, Sara would like more training on making videos. Molly thought MCP could offer more help to teachers during their first year of implementation. Leslie, Katherine, Laura, and Charlotte would like professional development opportunities that allow local MCP teachers to observe one another and plan together.

Modern Classrooms Implementation

Interview questions 5-8 are regarding the implementation of MCP in the classroom. Educators were asked what the implementation of MCP looks like in your classroom, has it changed during the school year, and what is easy and challenging regarding the implementation of MCP in their early childhood classrooms.

All eight participants mentioned the use of small groups to work on student needs and the use of self-paced learning. Katherine, Maria, and Sara discussed the mastery checks their students complete. Katherine has students complete their mastery checks and turn them in to her. While the students are waiting for the teacher to review their mastery checks, they have a list of activities they can choose from in the "holding section" of their learning path. Maria stated that she "uses mastery checks to see what her students know." Sara said, "mastery checks are used to guide small group instruction and that makes it seamless and easy to implement in my opinion." Katherine stated, "the fluidity of MCP makes it easy to implement."

Leslie, Amy, and Laura explained how trackers were the one thing they changed over the course of the school year and worked with until they found a system that worked well for them. The use of trackers allows teachers to know what part of the learning path their students are working on and how they are progressing through the assigned activities. Leslie said, "so, when I first started two years ago, we did the whole game board path. And that did not work at all for kindergarten. It was very overwhelming for a five-year-old who has never held a Chromebook before." Regarding using a paper tracker, Amy expressed, "I mean I tried it, but it was just so much for them to keep up with and sit like they're not organized at five years old." She now uses a visual tracker for

her students. Similarly, Laura said, “I think the biggest change was figuring out what type of tracker to use. How do you give them something that's kid friendly enough that they can follow, and they can be held responsible for but still, maintaining that structure that you need in the classroom?”

Molly, Katherine, Sara, Laura, and Charlotte spoke about the time commitment. Regarding the time commitment of filming videos Molly said, “when you start, yes, it definitely is one thing that we always tell people and it's true don't rerecord to make it perfect in the beginning. I think we all do.” When asked about implementing MCP, Sara expressed,

> Making sure to stay ahead of the game. I mean I try and stay about a unit ahead with my videos and so I'm fortunate my kids are older and so I have time to do that. I mean when they were younger I probably wouldn't have been able to come up for four hours on the weekend just to make videos. But in the first year it can be a lot to record for every lesson and have your videos prepped. There is a lot of preparation on the front part of it especially when you're thinking of first starting out so I would say that was probably the biggest thing for me was just figuring it out.

I inferred that implementing MCP can be time consuming, and it requires some work upfront before implementing an MCP lesson.

Teacher Impact

For questions 9-11, participants were asked questions that related to the impact MCP implementation has on teachers. Participants were asked how MCP has affected their ability to deliver academic content, if it had any impact on their relationships with students, and if it affected your attitudes towards teaching as a career.

The eight participants said they were able to better meet their students’ needs through differentiation. Molly said,

> I was able to differentiate a lot easier. It's hard to differentiate when you've got kids that don't even know the letters in their name and you've got kids that are reading and everywhere in between. Trying to teach them what they need to be learning to not only meet the kindergarten standards, but to keep them challenged. If they're kind of ahead of the game, but also catch them up if they're coming in behind that makes sense. Wow!

Sara said it helped with students going in and out of the classroom for different services because they don't miss any learning opportunities. She stated,

> Say I have a couple they're really smart, but they'll be like, no I was out of the room and I'm like, it doesn't matter. That's the beauty of this even though you were out of the room you're back in now so you can watch that video. They're like, I used to use this as an excuse. I was with the ESL teacher. I was with my speech teacher and I'm like, that doesn't matter now you can watch it anyway.

Leslie, Katherine, and Sara said using MCP has helped them be able to identify struggling students quicker than before and they are able to intervene before students fail assessments. Sara said, "knowing right then did they master it, instead of waiting until we're at the end of the unit and we're taking a test now, but I don't really know if you even have a clue what we've been doing for the last week."

Sara said MCP has "made you fall in love with teaching again and make you want to continue teaching after 22 years." Molly said MCP was a game changer for her. She is not as tired when using MCP because her students require less redirection and stay on task. Molly and Leslie said MCP helps with teacher burnout. Regarding burnout, Molly stated,

> I definitely think it helps with burnout. We just get so much put on our plates every day every year. It's more and more and I feel like doing this model. Yes. I'm doing some things at home. But I mean, we're always doing things at home, but some of the things that I'm doing at home now are more purposeful to make the classroom run more smoothly. So, it's not like I'm at home planning and prepping and grading. Yes, I'm making my videos. Yes, I'm creating my mastery checks because I don't know. I'm still doing the work at home, but it doesn't feel as exhausting, and it feels like

> during the day I have more time to just breathe. I don't know, but I think it definitely helps with burnout because the kids are doing more work.

About MCP affecting her attitudes towards teaching as a career, said,

> I definitely feel like it was an answer to a need because especially coming out of the pandemic and so that group that was six feet apart and masked all the time they were not independent. And so, then the very next year after that that group was also not independent. And so instead of meeting children academically. I felt like I was always in a rotation of everybody stop and clean up. Rotate the next one and stop and clean up and rotate to the next and so to me they were a very needy bunch and they couldn't handle a task on their own. And so, I couldn't pull small groups because I was having to help them through their stations so much and so I felt when I saw the advertisements or whatever and it was all like teach your children to be independent and blah I was like, this is the solution. Honestly MCP was the solution.

Katherine believes that her students enjoy MCP, and she enjoys it because she "gets to be a creator and think of ways to make it fun." Regarding how MCP has affected your attitudes towards teaching as a career, Laura said,

> I love it. I would say it's encouraged just a more positive attitude. It gave me a nice change or I think used to be kind of stressful for me as a teacher. I've always felt like I was a better reading teacher than teacher and I just could never figure out a good group with math. And now that I do Modern Classroom, I don't really have those negative feelings anymore. I feel ready to teach it. The planning is not as daunting. I know the kids have a structured routine and I think for everybody like math time is an exciting time for all of us.

Charlotte said,

> After 18 years in education, MCP has allowed me to change my overall perception of how a lesson should/can be taught. It has helped me realize that not all students need a long whole group lesson if they have a solid foundation of the skill being taught. It has allowed me more opportunities to differentiate.

Student Impact

Questions 12-14 are related to the impact MCP has on students. Educators were asked how MCP impacts student learning, how MCP impacted their social-emotional growth, and whether they believe MCP meets the needs of most of your students.

Molly, Leslie, Katherine, Maria, and Sara discussed the academic growth they have observed with all students. In terms of increased test scores, Molly said,

> I was one of four kindergarten teachers at my building and just not having other people on board with this style of teaching and learning was kind of hard because I was basically doing my own thing and then they as a team were doing their own thing. So, it was kind of isolating and lonely but I had better test scores, so it was worth it.

When reviewing test scores, Sara stated,

> Yeah, I mean iReady scores. I mean and I know I'm not a huge test scores are the end all be all, but their iReady scores were really good. I mean I felt like I had significant growth just sort of across the board in reading and in math even from really low kids all the way up to my really high kids. I mean, it wasn't just one sub group. Like I think sometimes when you do like intervention, you're like, I saw those really low kids that I was working with all the time and those small groups they grew but maybe my higher kids didn't and this year. I feel like I'm seeing everybody is making growth because they're all having the opportunity to come ask questions that they don't understand or they're all having that small group time to kind of push into the next level.

Molly, Amy, Maria, Laura, and Charlotte discussed how their students have shown more confidence, independence, and show ownership of their learning. Amy expressed, "I think it just gives them ownership over their learning and they're not just listening or sitting there, watching." Since implementing MCP, Charlotte stated, "I feel like the implementation has allowed my students to become more independent and allows them to take ownership of their daily learning."

Katherine and Maria discussed how their students exhibit a growth mindset. Regarding growth mindset, Maria said,

> I am so passionate about this and so happy with it and so impressed with children and parents are very excited about it too. They notice that something is happening with their children. They're asking for more math work because they say that they love learning math and their attitudes are so positive and representative of children who have a growth mindset. Because that's what the model supports with the retakes and with mastery focus.

Molly said the use of MCP "helped with student relationships because there is less redirection needed." Katherine, Laura, and Charlotte said there is a stronger sense of class community and building of positive relationships with peers since students can help each other. Katherine expressed,

> I think that every kid has found a voice in this and I think also adding the Flipgrid piece and they can comment on other kids and I just think that everything I don't I just think that it's built a community. It's like a little community and every kid is so excited I have this child with special needs who honestly has grown so much this year. I feel like at this point we've had to do a very modified thing because he had a full-time aid. He did not have very much oral language, but he has grown so much.

Charlotte believes that "working with partners on a Practice Buddy or during a math game has allowed my students to build closer relationships with their peers."

Overall Perceptions

Interview questions 15-18 are regarding overall perceptions of MCP. Participants were asked what the strengths were of using MCP, what suggestions do they have for improving MCP, would they recommend MCP to other teachers, and what barriers have they encountered when implementing MCP.

The eight participants said the strengths of MCP are the use of small groups to reach the needs of all learners. Katherine and Sara identified the flexibility of MCP as a strength. Leslie and Maria identified academic growth as a strength of MCP. Molly and

Leslie identified student independence and self-paced learning as strengths of MCP. The eight participants said they would recommend MCP to other educators.

In terms of ways to improve MCP, Maria suggested MCP provide more resources on how to make implementing MCP easier. Leslie would like to have access to more examples of early childhood units that teachers could use as models. She believes that could help recruit more early childhood educators. Amy suggested that MCP match their mentors with teachers that teach the same grades. Laura and Charlotte recommended that MCP teachers should get chances to observe others MCP facilitators.

In terms of barriers with MCP, Molly, Maria, and Sara said it can be isolating when you are the only one in your grade implementing MCP. These three teachers mentioned having to defend the use of MCP to administrators or other teachers in their buildings. Sara said barriers for her are "when there are internet issues or if students do not bring charged devices." Charlotte said a barrier is "I am not techy so I am trying to learn the technology." Leslie, Amy, and Katherine reported off-task behavior as sometimes being a barrier, especially when working with the needs of kindergarten and first grade students. Molly and Laura spoke of how MCP can be time consuming as a barrier.

Data Analysis

I implemented the process of coding the data according to Creswell's (2013) six steps for completing an inductive analysis. First, I got a sense for the data by reviewing transcripts and documents and making notes as needed. Second, while reading through the transcripts, I worked to get a sense of what participants were talking about and

recorded thoughts and ideas in the margin to express the underlying meaning. Third, I then started the coding process, using open coding (Creswell, 2005) to assign colors during the process.

I identified several codes while analyzing the data. To code the data, I used open coding to assign colors by hand during this process. Katherine and Maria addressed growth mindset. All the teachers interviewed discussed using small groups, differentiating learning, and working to meet the needs of students. There were several teachers who discussed student independence and responsibility with self-paced learning. Katherine and Sara spoke about the flexibility and fluidity MCP provides. Molly, Katherine, Sara, Laura, and Charlotte alluded to the academic growth they witnessed in their students. Katherine, Maria, and Sara talked about their use of mastery checks. Molly, Amy, and Maria discussed the confidence exhibited by their students when using MCP. All eight teachers talked about the use of trackers. Molly, Katherine, Sara, Laura, and Charlotte discussed how MCP can be time consuming and require a lot of work upfront before implementing it with students.

I listed all the codes and combined like codes while eliminating redundant codes, which was step four of coding the data. During step five, I used the identified codes and returned to the transcripts used for data collection to determine if these codes fit the data and if any new codes emerge. The final step of the data collection was for I to reduce the list of codes into themes.

Themes

I reviewed the codes from the data and then combined the codes into broader themes. The first theme established by me was differentiation. This theme was determined by combining the codes academic growth, small groups, student needs, and the use of mastery checks to identify student needs. The second theme established was self-paced learning. The codes combined to develop this theme were independence, self-pace, growth mindset, the use of trackers, and flexibility. The third theme established was time consuming. The teachers reported MCP can be time consuming and require work up front on the part of the teacher and it can also take time to teach the students the routines and expectations when using the MCP blended learning model. (See Figure 3).

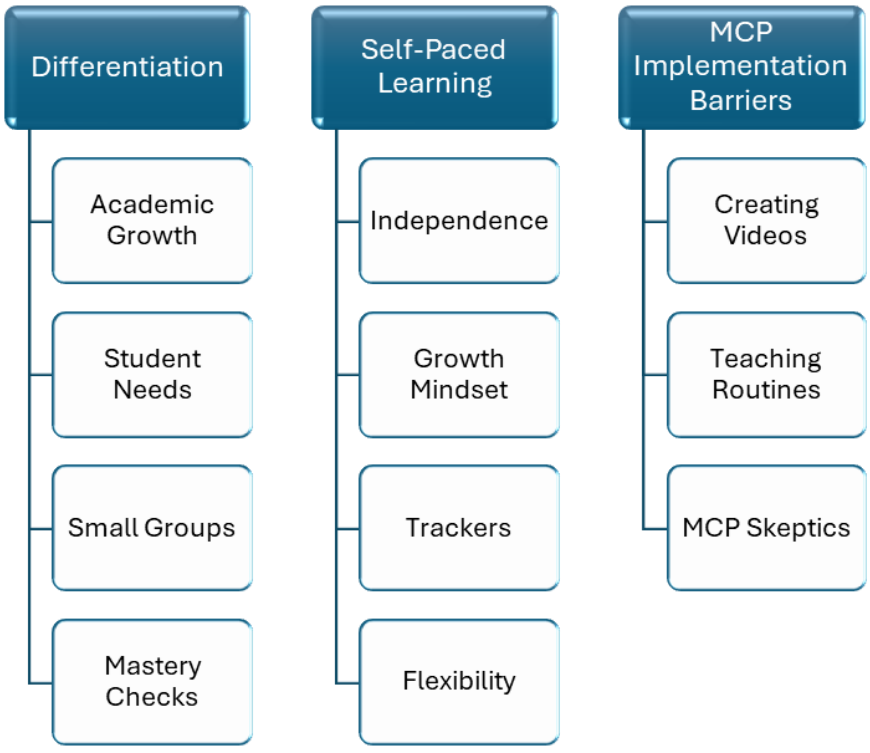

Figure 3. Summary of themes and subthemes from teacher interviews.

Interview Responses

Theme 1: Differentiation

The ability MCP gives teachers to differentiate learning and meet the needs of all students using small group instruction was the theme that appeared in all the participants' interviews. The MCP model allows teachers to work with small groups while students are working on their learning paths with teacher made videos. The teacher is teaching in two places at one time.

Academic Growth

Participants explained that all their students, both high and low abilities, made significant academic growth over the course of the school year using the MCP. Molly, Maria, and Sara stated their students' scores were the highest in their grade level when compared to other teachers not implementing the MCP model in their classrooms. Participants attribute their students' academic success to more small group instruction.

Small Groups/Student Needs

Participants stated they can spend more time teaching students in small groups or individually. Small group instruction allows teachers to fill in gaps with lower performing students while also facilitating the growth of higher performing students. Leslie stated, "MCP gives an access point for all students at different levels." Amy stated that, "MCP allows teachers to differentiate to the degree of exactly what the student needs exactly where they are."

While students are working with the teacher, the teacher is still instructing the students using teacher-made videos. Katherine stated, "I tell my students they are going to be taught by my twin, it is great to be able to teach in two places at one time."

Mastery Checks for Understanding

Katherine, Maria, and Sara explained the importance of using mastery checks. Mastery checks allow teachers to determine what students do and do not understand. Teachers can gather information from mastery checks to guide small groups instruction. Maria said, "The use of mastery checks has allowed me to get to know where every student is [academically]." Sara expressed, "[I] use mastery checks to guide my small group instruction."

Theme 2: Self-Paced Learning

Self-paced learning was another theme that appeared in all eight interviews. Self-paced learning is one of the main tenets of MCP, and all the teachers discussed how it works for their students. Sara stated that self-paced learning allows students to work at a pace that is good for them. Molly stated that self-paced learning helped one of her students that has anxiety because she learned to be comfortable working at her own pace.

Independence

Student independence was another important piece of self-paced learning as observed in my study. Participants explained that students can move on from one activity to another without having to be directed by the teacher. Leslie explained that the

independent part of MCP is what interested her about the model. She stated that "MCP was an answer to a need, the old centers set up took too much time cleaning up and switching, now my students know what is next without having to be told." MCP helps prevent quick workers from asking what to do next.

Growth Mindset

Early childhood students who exhibit a growth mindset are more likely to learn through a mastery approach, willingly accept challenges and put forth effort to learn (Dweck, 2012). As learners develop these characteristics, they can apply these attributes throughout their lives as successful students. Katherine and Maria identified MCP as fostering a growth mindset with their students. Giving students the opportunity to work on developing characteristics that align with growth mindset can benefit them as future learners.

Use of Trackers

All the participants explained the importance of using trackers since it makes students accountable. Students know what is expected of them. Charlotte stated that students "take ownership of their learning through the use of trackers." Teachers were able to make sure students were completing the assigned work with the use of trackers without having to check-in with students. The visual representation of where students are on their learning path helps teachers visually see how students are progressing.

Flexibility

Sara stated that "the flexibility of MCP has been very helpful this school year." She has several students that go in and out of her class for different services. She does not have to worry about her students missing class instruction since they can watch the videos she makes for them. Students can also come in the room and get started on their work since they know what is expected of them. The teacher does not have to stop teaching to give those students directions.

Theme 3: Barriers to Implementing MCP

Participants explained that implementing MCP can be time consuming. Creating videos for lessons and preparing materials like the learning paths and the activities on these paths takes time. When starting MCP with a class, it also takes time to teach the routines.

Time Needed to Create Videos

Sara stated that "creating the videos takes a lot of time." She sometimes goes up to school on the weekends to create the videos. Molly, Katherine, Laura, and Charlotte also alluded to the fact that creating videos and implementing MCP requires a lot of work upfront. Laura said,

> I would say sometimes making the videos [is a barrier], look if I go back to this year. It's a lot easier because we have everything. But in the first year it can be a lot to record for every lesson and have your videos prepped. There is a lot of preparation on the front part of it especially when you're thinking of first starting out so I would say that was probably the biggest thing for me was just figuring out how to get it all prepped.

Charlotte said, “planning and making videos can add a lot of extra planning for your weekly lessons.”

Time to Implement Teaching Routines

Katherine and Laura talked about the importance of making sure you take time to teach the desired routine of how you as a teacher want MCP to run in your classroom. This helps students stay on task. Molly and Amy discussed how setting up the MCP routine with kindergarten students can take up to a month. Molly stated that “once she taught her students the routine, she spent one week just watching her students implement the model to make sure they understood the expectations.”

MCP Skeptics

Molly, Maria, and Sara said it can be isolating when you are the only one in your grade implementing MCP. These three teachers mentioned having to defend the use of MCP to administrators or other teachers in their buildings. Molly said, “I was basically doing my own thing and then they as a team were doing their own thing. So. it was kind of isolating and lonely, but I had better test scores, so it was worth it.” Maria said, “I would like some support or at least curiosity from behalf of my administrator.”

Observing MCP in Action

The three facets of MCP are blended learning, self-paced work, and mastery checks. I observed teachers in five classrooms implementing MCP (See Table 3). The

observations were conducted in a kindergarten, a first grade, and three third classrooms in the Silver Springs district.

Table 3

Features of MCP Observed in Classrooms

Blended Learning	Self-Paced Learning	Mastery Checks
Students worked on Chromebooks, which included teacher made videos, and completed paper assignments.	Students worked independently. Trackers were used.	Students completed work and turned it into the teacher in two of the classrooms. In the other classrooms, the scores on an online assessment told students what their next steps were to complete.
Students met in small groups with the teacher.	Students were able to work at their own pace on their learning paths.	Teachers used mastery checks to pull students to their table.

I was able to observe evidence of blended learning in all the classrooms except for kindergarten. Students participating in blended learning were watching teacher made videos and completing work independently while the teacher was working with small groups of students or individuals. Observing small group instruction correlates with the first identified theme of differentiation.

All the classrooms observed were employing the use of self-paced learning. Students were able to work independently at their own pace. Observing self-paced learning correlates to the second theme. All the students in the classes observed knew what to do for the next activity. The students were able to move from task to task without interrupting the teacher about what to do next. This worked well for students that need

extra time on assignments as well as quick finishers so those students can move on to the next task and are not held up by other students.

Mastery checks were evident in all the classroom settings I observed. The students in these classes all had assignments to complete that were checked by the teacher. The teacher would use these assignments to determine which students needed support with the content and which students need some enrichment. The teacher would use these items to figure out which students needed help with the content or could need some enrichment. The two third grade classes observed had the students individually record their scores on different assignments to dictate what their next steps were. The use of mastery checks is an identified sub-theme for differentiation. Mastery checks allow students to demonstrate they understand the topic before moving on to another lesson. This is important because students do not need to move on to the next lesson without fully understanding what is currently being taught. Mastery checks allow students who can move through the material quicker the opportunity to do so without having to wait for other students to demonstrate their understanding.

Themes Identified During the Observations

During the observation phase of data collection, I identified four common themes in the four classrooms that were implementing MCP. The first theme identified was blended learning. All these classrooms had students working on their Chromebooks to watch teacher made videos. The students also worked on completing paper assignments. Students were called to the teachers' tables as needed.

The second theme observed in these classrooms was self-paced learning. Students were all working independently and at their own pace. The students did not have to wait for teachers to give directions about the next assignment or activity to complete. Students had learning paths that would displayed the next thing to do. Trackers were used so the teachers could view what progress the students were making on their learning paths.

The third identified theme was the use of mastery checks. I was able to see teachers use mastery checks with their students to gauge their understanding of the content being taught. Teachers would review what students turned in and would call students to their table based on what needs they identified. In two of the classrooms, the students would take an assessment online that would serve as a mastery check. These students would then know what their next steps were based on the activities listed on their daily tracker sheet.

The fourth identified theme in all the classrooms observed was the differentiation of content. Differentiation was occurring in the classrooms using various methods. In some classrooms differentiation was observed with the activities students had on their learning paths, in other classes it was demonstrated through small group instruction, and in other settings students were playing different math games.

MCP Evident in Learning Resources

When reviewing teacher lesson plans (Appendix G), none of the teachers specifically stated they were using MCP during that learning time. Although not documented on the lesson plans, it was evident during the observations that all the teachers were providing instruction for their students on the intended topic. I reviewed

the one lesson plan for the observation block that I was observing. I reviewed one social studies lesson plan, two English language arts lesson plans, and two math lesson plans. Since the lesson plans reviewed did not notate the use of MCP, these lesson plans would show no difference than those of a non-MCP peer's lesson. The difference in an MCP classroom was how the lesson plans were implemented not how they were written.

Upon reviewing students' learning paths (Appendix H), during the classroom observations, I was able to find evidence of learning opportunities focused on the learning objectives in all the classrooms (See Table 4). There was also evidence of the MCP components being used. The learning paths contained teacher-made videos offering students the opportunity to participate in a blended learning environment. The students in these classrooms were able to independently move at their own pace through the assigned activities correlating with the second theme of self-paced learning. All the students had work that had to be completed. The assigned work allowed the students to practice the learning objectives. This completed work allowed teachers to know how well the students were understanding the content. In some classrooms, the students would turn in the work and the teachers would review it, then call learners to their table who still needed assistance correlating to the first theme of differentiation. In other classrooms, students would record their mastery check grades and know their next steps based on the grades they received.

Table 4

Features of MCP as Evident in Learning Paths

Blended Learning	Self-Paced Learning	Mastery Checks
Students would work on their learning paths when not meeting with the teacher at her table.	Students were working as autonomous learners on their path.	Students were completing mastery checks as part of their learning paths which led to teachers knowing which students to pull for small group.

Themes Identified From the Learning Resources

During the review of learning resources phase of data collection, I identified four common themes in the four classrooms that were using learning paths. Since the lesson plans did not denote the use of MCP, I was only able to use the review of learning paths for this MCP study. The first theme identified was blended learning. All these classrooms had students working on their Chromebooks. Two of the classes had online learning paths to follow; the other two classes had a printed page the students used for the day, however the learners had assignments to complete online as well. The teacher would provide instruction to students through small groups and the use of teacher videos. There was an integration of face-to-face learning and online learning. Students completing mastery checks as part of their learning paths led to teachers knowing which students to pull for small group.

The second theme observed from the student learning paths was self-paced learning. It was evident that the students were using self-paced learning as they independently worked through their learning paths. The students were able to seamlessly move from assignment to the activity without difficulty.

The third theme observed from the student learning paths was mastery checks. The students had mastery checks listed as an activity they had to complete. The students would turn these in and the teacher would review them to gauge the students' level of mastery. Two classes would have their students determine their next activity based on the score they received on their mastery check online.

The fourth theme observed from the students' learning paths was differentiation. Three of the four classes had sections of the learning paths that allowed students to pick different activities based on their needs or interests. Two of the classes had iReady listed on the student learning paths. iReady is an adaptive online learning assessment that provides individualized instruction. Including iReady on the learning path as a required activity is another way teachers can differentiate students' instruction.

Cross-Data Analysis

Table 5 shows the themes identified by me during each phase of the study. During the interview phase, I identified differentiation of instruction, self-paced learning, and MCP barriers as the three main themes. When I analyzed the data collected during the observation phase of the study, the three themes that emerged were blended learning that students could self-pace, mastery checks, and differentiation. Students in the MCP classrooms were able to work at their own pace on both technology-based and paper-based activities. Mastery checks allowed the teachers to determine if the students understood the concept being taught. Teachers provided differentiated instruction through small groups and work that was assigned to each student. When I reviewed learning resources such as lesson plans and student learning paths, I identified evidence of blended learning and self-

paced learning by reviewing what was assigned to the students. The learning resources reviewed also showed opportunities for instructional differentiation.

Table 5

Summary of Themes From Data Collection

Types of Data Collection	Identified Themes from Data Collection	Common Themes
Interview	• Differentiation • Self-Paced Learning • *MCP Barriers	• Differentiation • Self-Paced Learning • Blended Learning • Mastery Checks
Observations	• Blended and Self-Paced Learning • Mastery Checks • Differentiation	
Review of Learning Resources	• Blended and Self-Paced Learning • Mastery Checks • Differentiation	

Note. *MCP Barriers were only identified as a theme from the interview data.

After completing the interviews, I was surprised to find that Leslie did not implement MCP as expected. I had expected to see blended learning, but this was not the case. During the interview with this participant regarding how she implemented MCP, she stated,

> We were really trying to teach the Seesaw tools so they would know how to use Seesaw or the learning platform. So, we thought let's put all the tool activities in a path and it was too much toggling back and forth. And so, we kind of broke it

> back down. My colleague and I put a Google slide on the board and hit freeze on the projector. The yellow squares are their must do because mustard is yellow and then there you pick activities are silver and a silver box. And usually that's like a bucket that they can go to. I just have a picture of the shelf on the pick and then they can go to that shelf and choose an activity over there.

When I observed this class, I did not see teacher-created videos. The students had pictures on the board of the order of the activities they needed to do, but there was no blended learning occurring. I classified it as a to-do list for the students, not a model of MCP. Before leaving the classroom, Leslie told me that sometimes the students are assigned activities through Seesaw, an online learning platform.

Upon reviewing the themes from all three sources of data, I found the following common themes: (1) differentiation, (2) self-paced learning, (3) blended learning, and (4) mastery checks. All the teachers talked about differentiation during their interviews, it was evident during observations and notated in learning paths. Self-paced learning was discussed during interviews and was observed in all the classrooms. Students were able to complete work in the amount of time that was right for them. Blended learning was seen during observations, in all classroom settings except one, and notated in learning resources since students were working on assignments digitally, on paper, and with the teachers. Mastery checks were discussed during interviews and evident during classroom observations and the review of learning resources.

Summary

Teacher interviews, observations, and the review of learning materials showed the core principles of the MCP instructional model being used in early childhood classrooms of the participants in the study. The evidence from each phase of the data collection

resulted in several common themes. Data from the participant interviews with early childhood educators in this study indicated that with the implementation of MCP, teachers can differentiate instruction and allow students to self-pace when working. Study participants also identified some barriers associated with MCP implementation such as the time it takes to create videos and establish routines with the students, and the need to defend the use of MCP to skeptics. During the observation phase, I was able to see blended and self-paced learning in action in most of the classrooms. Teachers were able to differentiate instruction by pulling small groups of students and addressing their needs. Mastery checks allowed teachers to know if students understood the content that was taught. I was able to identify the same themes of blended and self-paced instruction, mastery checks, and differentiation when reviewing learning resources.

Chapter 4 identified emerging themes from data that were analyzed regarding the research questions. Chapter 5 includes conclusions from the data and recommendations to educational stakeholders.

CHAPTER 5

DISCUSSION, IMPLICATIONS, AND FUTURE RECOMMENDATIONS

This research study aimed to understand the perceptions, attitudes, and beliefs about the use of MCP in early childhood classrooms. This was done by reviewing data collected from interviews, classroom observations, and learning resources. The previous chapters of this study consisted of a literature review of MCP's core principles of blended learning, self-paced learning, and mastery-based grading. Previous research on the perceived efficacy of MCP has been conducted at the secondary level. That research suggested that the MCP instructional model is a good fit for students in secondary grades.

The problem addressed in this study was the lack of research studies with early childhood educators to gauge their perceptions, attitudes, and beliefs about the use of the MCP model to teach students in their classrooms. Although there has not been research conducted in these grade levels, many early childhood educators have participated in MCP training and are implementing this model in their classrooms. Prior to this study, research had only been conducted with secondary teachers and students concerning their perceptions of MCP. This qualitative research was designed to fill a gap in the literature regarding the use of the MCP model in early childhood classrooms, grades kindergarten through third grade, and how effective the teachers in these classrooms perceived this model to work in their classrooms. This study examined using interviews with eight teachers, and classroom observations and review of learning resources in six classrooms.

By using multiple sources of data, I examined whether teachers found the MCP model effective in their early childhood classrooms and how they were implementing the three parts of MCP, blended learning, self-paced, and mastery based.

Chapter 5 includes a summary of the results, research findings for research questions, discussion of the findings in relation to previous research studies and theoretical underpinnings, the significance of the study, and possible implications for educators, policy makers, and MCP organization. The chapter concludes with recommendations for further research.

Research Questions

Central Research Question

How do early childhood educators perceive the use of the Modern Classrooms Project in their classrooms?

The answers to this research question came from the interviews completed with the participants. All eight of the participants perceive MCP to be a good instructional model to use with their students. These eight educators would all recommend the use of the MCP blended model to other teachers. The teachers interviewed all agreed that using MCP allows teachers to differentiate their instruction and allow all learners to receive the opportunity to have their needs met and to grow as individual learners. Not only are students' needs met through small groups, but also students still receive instruction from the teacher during their independent learning time using teacher-made videos, assigned learning activities, and mastery checks to evaluate understanding.

Sub-Question 1

What are early childhood educators' beliefs and attitudes regarding the Modern Classrooms Project in their classrooms?

The participants believed that MCP is a good fit for their early childhood classrooms. Teachers implementing MCP do not have to spend as much time providing whole group instruction. Whole group instruction makes it difficult for teachers to know who does and does not understand the concept being taught. Using mastery checks, teachers can determine which students need more help as well as which students are ready to move on to other topics or harder concepts.

Teachers felt like MCP was the answer to a need for how to reach students more efficiently. During observations, I could see how MCP was benefiting all students as they worked both independently and with their teachers. The students were able to have independent practice to deepen their understanding of the content, while students working with the teacher could receive additional support to help with understanding or be given more challenging enrichment tasks to meet their needs.

Sub-Question 2

What factors impact early childhood educators' use of MCP in their classrooms?

Findings showed that participants saw academic growth of their students and were happy to continue implementing MCP. Teachers also reported that MCP helps the classroom run smoother. Also, with MCP, students know what to do next and generally exhibited fewer behavior issues. Teachers enjoy using MCP because they get to be creative, feel less burnt out, and get to adjust their teaching methods. Another factor that

impacts educators' use of MCP is that teachers can identify the needs of their students before getting to the point of assessments.

Sub-Question 3

What are early childhood educators' perceived barriers to the implementation of MCP?

According to the participants, implementing MCP can be time consuming. Teachers reported that it takes time to record the videos and prepare other resources like learning paths and trackers. They also noted when first implementing MCP with young students in early childhood classrooms, it can take time to establish a routine that students can follow independently. Teachers need to make sure that students understand what is expected of them to reduce off-task behavior. Off-task behaviors with young students in charge of navigating through their learning paths independently can be a barrier teachers need to be prepared to address. Even though there are some identified barriers with implementing MCP, the early childhood teachers that participated in this study all believed that is a useful instructional model and will continue to implement it in the future.

Summary of Collected Data

Interview Summary

The interview protocol comprised of five main sections: Modern Classrooms Training, Modern Classrooms Implementation, Teacher Impact, Student Impact, and Overall Perceptions of MCP. These sections focus on MCP and the impact it has on teachers and students. A summary of the interview findings are summarized below.

Modern Classrooms Training

Most of the teachers felt prepared to implement MCP after completing the training. MCP mentors, district level technology coaches, and MCP Facebook groups were found to be helpful for teachers when they first started implementing MCP. Some teachers felt that MCP should try to do a better job of aligning early childhood teachers going through the training with mentors that are also early childhood teachers so they can give advice that works with young students. Maria stated, she would like to have more professional development opportunities on implementing MCP the first year. Many teachers wanted opportunities to plan with other MCP teachers and observe them implementing the model in their classrooms.

Modern Classrooms Implementation

Katherine has implemented MCP for three years, which is the longest of all the teachers. Teachers reported using teacher made videos, self-paced learning, and mastery checks. Many teachers begin with a short whole group lesson before students start working independently. While students work on their assigned work, the teachers pull small groups and individual students. Teachers work on meeting the needs of all learners, both those struggling and those excelling at a given standard. Seven of the eight teachers use trackers. Many of these teachers reported finding the "just right" tracker for their class took some time and that was often something reported as a change over the course of the school year. The fluidity of MCP was identified as something that makes this blended learning model easy to implement. Challenges of MCP that were identified are it takes time to make all the videos, it takes time to teach the routine, and it is important to

have good classroom management to cut down on off-task behavior of students not doing what is assigned to them.

Teacher Impact

All the teachers reported they can better differentiate their instruction and provide more small group learning opportunities because of using MCP. Teachers said they were able to identify students who were struggling with a topic quicker than when using traditional teaching methods. A kindergarten teacher reported MCP is a good alternative to the old-fashioned way of doing centers in the classrooms. Teachers reported feeling closer to their students and having better relationships with them. A teacher who has students going in and out of her room for different services said MCP works well for her class, so when students come in, they can sit down and start their learning path without missing any instruction. Another teacher reported that MCP has helped with burnout. Teachers can clone themselves and teach all students through the videos while also teaching in small groups at the same time. A teacher who did not enjoy teaching math now loves teaching math because she started implementing MCP. A veteran teacher said MCP changed her overall perception of how a lesson can be taught; not all students need a long whole group lesson. Two teachers said MCP helps keep students on task and less redirection is needed.

Student Impact

Many of the teachers interviewed reported significant growth in all students, and several of these teachers said that when their scores were compared to other teachers in

their grade level not using MCP their scores were higher. Participants noted that all students were able to have an access point at an individual level. Students are reported as being more independent with self-paced learning, confident, and learned to take ownership of their learning. Students are using a growth mindset. "Growth mindset is defined as a belief that construes intelligence as malleable and improvable" (Dweck, 2012, p.7). Early childhood students who exhibit a growth mindset are more likely to learn by a mastery approach, and willingly accept challenges and put forth effort to learn. As a result of MCP, teachers reported a stronger class community. All the teachers interviewed believe that MCP does meet the needs of their learners; however, one teacher did said MCP can be a challenge for students who are not native English speakers and are still learning to speak English.

Overall Perceptions of MCP

The teachers believed a strength of MCP is that by using small groups, all student needs can be met. MCP allows for flexibility; students can self-pace; and students can show more academic growth than through traditional instruction practices. To improve MCP, teachers stated they would like to have access to more examples of early childhood MCP units and chances to observe other early childhood MCP teachers. Participants also identified some barriers in using MCP, including issues when the internet goes down in the building, students not bringing their devices to school, and an LMS that may not be user friendly for students or teachers. Three teachers cited instances of not feeling supported by administration or other teachers in their building since they are the only ones in their building or grade level implementing MCP. When the teachers were asked if

they would recommend MCP to other teachers, all the teachers interviewed said they would recommend MCP to other educators (See Table 6).

Table 6

Teachers' Beliefs Regarding Their Perceptions of MCP

Category	MCP Strengths	MCP Challenges
Modern Classrooms Project Training (Professional Development)	• Good training • MCP mentors helpful • MCP Facebook groups helpful • Technology coaches helpful with implementation	• MCP mentors need to align with the teacher's grade level. • No current PD that allows observing and collaborating with other MCP teachers
Modern Classrooms Project Implementation	• Teacher-made videos, self-paced learning, and mastery checks • Some teachers start with the whole group before MCP. • Small groups with all students • Use of trackers	• Time it takes to make videos. • Time it takes to teach routines. • Making sure students stay on task while working independently.
Teacher Impact	• Able to differentiate better. • Identify strugglers quicker. • Good alternative to center rotation • Feel closer to students. • Helps with teacher burnout. • Help teachers enjoy teaching a new way	
Student Impact	• Academic growth • More independent, confident, and take ownership of their learning. • Growth mindset • Stronger class community • Meets the needs of all learners	• Can be hard for students learning English.
Overall Perceptions of MCP	• Strengths: all student needs can be met, flexible, self-paced, and academic growth • All teachers recommend MCP to other teachers.	• Improve MCP by allowing teachers to observe other MCP teachers. • Barriers: internet issues, students not bringing charged devices to school, LMS that is not student/teacher friendly, and lack of support from admin or other teachers.

Observations Summary

I observed five classrooms that implement MCP. All of these classrooms are located in the Silver Springs district. I observed one kindergarten, one first grade, and three third grade classes. These classrooms, except for the kindergarten classroom, were implementing MCP. Teachers in all six classrooms were pulling students to their table to work with them in a small group or individually. All the students were completing activities independently. In the five classrooms fully implementing MCP, I was able to see teacher-created videos, blended learning, self-paced learning with the use of learning paths and trackers, and mastery checks.

Learning Resources Summary

The lesson plans that the participants provided to me did not specifically state the intended use of MCP to teach the topic listed. However, once I was in the classroom setting, I was able to identify characteristics of MCP being used to teach the topics except for the kindergarten class. Using the learning paths, the students were able to practice applying the content by completing the assigned activities. The use of MCP allowed students to work at their own pace. Teachers were able to pull small groups and work with students while other students were able to continue working. Students did not have to ask what to do next because the learning path was available to them. Students who had to leave the classroom and return due to things such as receiving services outside of the classroom or going to the restroom were able to pause their work, leave the classroom, and come back to where they left off.

Summary of Study Findings

I analyzed the collected data and established three themes. The first theme was differentiation. Teachers were able to meet the needs of all learners using small group instruction. Small group instruction allowed educators to target the needs of different learners. Teachers noted that with MCP, they could narrow their focus on individual needs, observed that more learning occurred, and led to more academic growth. The participants also stated that they used mastery checks. Mastery checks are useful for teachers so they can determine which students understand the concept being taught and which students need support in a small group setting. Teachers can also give students another opportunity to correct their work with the use of mastery checks. This process allows all students to flourish at different levels.

The second theme that emerged was self-paced learning. Self-paced learning has many benefits. Students who need more time to work on their assignments are afforded that opportunity, while students who are quick to finish their work do not have to wait for other students to complete assignments before moving on to the next task. Self-paced learning can help students who may have anxiety about completing assignments as fast as other peers. Students who finish work quickly can move on without having to ask the teacher what to do next. Self-paced learning also promotes learner independence. Students learn to take ownership of their work and become more confident. The use of MCP fosters a growth mindset in students. The use of trackers makes students accountable for their work. Teachers can check and ensure that their students are progressing through their learning paths with the use of trackers.

The third theme established was barriers educators faced while using MCP. Many participants noted the barrier of time demands. Many participants reported that making videos and other prep work for implementing MCP can be time consuming. Even though this was identified as a barrier, all the participants did not feel like this was enough of a barrier not to implement MCP. All the teachers stated they would suggest other educators use MCP. Finally, participants noted that the preparation work associated with MCP implementation pays off when teachers can run a classroom in a way that allows for increased student learning.

Discussion of Theoretical Framework

MCP's Connection to Richard Mayer

Several facets of Dr. Richard Mayer's cognitive theory of multimedia learning were evident through the data collection process of this study. The cognitive theory of multimedia learning allows students to learn from both pictures and words simultaneously (Mayer, 2020). The teacher-created videos that were observed in four of the five classroom settings visited by me correspond with Mayer's belief that instructional videos with spoken and written words on the screen are an instructional format that fosters opportunities for multimedia learning. Educators that use MCP in their classrooms and include videos with pictures and words to teach their students are aligning their instruction with the human's cognitive nature (Mayer, 2020). Teachers implementing MCP need to include videos that include pictures and words. Once the videos are presented to the students, they then use their working memory to organize the words from the pictorial and verbal models and integrate them with prior knowledge so

they can store the material in their long-term memory. Mayer taught that the process of moving new learning to long-term memory can happen several times during a lesson (Mayer, 2020).

MCP's Connection to Benjamin Bloom

Bloom's instructional strategy that teachers should work with students to meet their individual needs was evident by educators using small group and individualized instruction (Bloom, 1964). Teachers were also implementing parts of Bloom's strategy about mastery learning. Students were given opportunities to revisit incorrect work and learn from their mistakes (Bloom, 1968). The use of mastery checks also allows students who have mastered the learning objective to move on to the next topic.

MCP's Connection to Jean Piaget

Piaget is considered a constructivist theorist. He was interested in how children constructed information from new learning. According to Piaget, students learn best in child-centered classrooms. Children learn in different ways and teachers need to acknowledge this when planning classroom activities (Lascarides & Hinitz, 2011).

When I observed classrooms using MCP, there was evidence of child-centered classroom practices. Teachers were able to provide students with varied learning activities that allowed students to construct their own learning by completing different tasks. If needed, teachers worked with students and offered help as they were completing their learning tasks. The educators acted as facilitators that could aid students if needed. Teachers were not telling students what they need to know, which is characteristic of

whole group instruction. Students participating in self-paced learning have opportunities to work at a speed that is just right for everyone in the classroom. Participants also noted that children in these classrooms did not have to experience the whole group instruction.

MCP's Connection to Lev Vygotsky

Vygotsky is also considered a constructivist theorist. He believed that cognitive development occurs through human relationships that foster growth through interactions with both individuals and society. These interactions allow students to learn from others in their environments. When teachers create more time for small group learning they can foster academic growth with their students (Vygotsky, 1978).

I observed teaching practices guided by Vygotsky's theory in several classrooms. Four of the participants mentioned that implementing MCP has created a stronger classroom community because students can learn from each other during partner or group work. These participants explained that sometimes the students are given assignments that require partner or group work. Participants also noted that using small group instruction, they were able to scaffold learning for students. The teachers also noted they were able to provide support for students as needed depending on students' understanding of the concept being taught.

Discussion of MCP Previous Studies

Some findings of the study were similar to those of prior MCP studies conducted in secondary level classrooms. The first MCP study was conducted by Wolf in 2019. This study used seven secondary teachers who implemented MCP in their classrooms. The

teachers were interviewed prior to training, midyear, and at the end of the school year. The teachers and students had positive thoughts and feelings about MCP.

The Wolf (2019) study conducted in this paper because it used a small sample size of teachers. It is different because students were used for the study at the secondary level where student data were not collected for this study. Both studies produced results that teachers felt like they could effectively serve all students by using the MCP instructional model.

Wolf et al. (2020). This study was a comparative study. Participants included 28 MCP teachers in eight secondary schools in a mid-Atlantic region and 27 teachers not using MCP. There were also student participants included in the study: 1,097 students who were being taught by teachers using the MCP model and 832 students who were not being taught using the MCP model. Data were collected at the midpoint of the school year. Results showed that MCP teachers felt more capable of differentiating instruction for their students and had more opportunities to provide individual instruction. MCP teachers also found class time to be class less stressful when using MCP. Barriers identified were time constraints due to making the videos and lack of administration support.

Whereas there are some similarities between the 2019-2020 study and the current research study, the study design was different because it was a comparison study between two groups of teachers and students. The current research study did not study students and there was not a comparison group of teachers. Teachers who implement MCP at the secondary and early childhood levels believed that using MCP allowed teachers to better differentiate instruction and provide more time for teachers to meet individual needs.

Some participants from both sets of teachers alluded to the fact the MCP can help class time be less stressful. The same barriers were also identified in both studies. Participants from both groups in the secondary and early childhood groups identified making the videos as time consuming. Also, participants from both studies identified lack of administration support or support from others in their school buildings as an issue.

Morrison et al. (2021) conducted a third study from 2020 to 2021 to review the use of MCP at the secondary level. The same instruments were used for data collection. This MCP research study was like the study conducted in 2019-2020. In this study, 74 MCP teachers and 27 non-MCP teachers participated in the study. There were 441 students participating in MCP classrooms and 96 students not in MCP classrooms interviewed for this study. Findings of this study showed that both teachers and students had positive perceptions of MCP in regard to learning, relationships, and engagement.

The research study in this paper is different from the Morrison et al. (2021) follow-up study, because the former was a comparative study and used both teachers and students at the secondary level. The current study was conducted with early childhood educators only. Despite the differences in the study populations, teachers that participated in both studies believed that using MCP fostered good learning opportunities for students and can encourage positive relationships with students.

The results of these studies at the secondary level and the study conducted at the early childhood level show that MCP can work with students from kindergarten and up. The ability for teachers to make MCP fit the needs of their students and their classroom make it a good option for teachers to use.

Discussion of Blended Learning in MCP Classrooms

The first core component of MCP is blended learning. In Chapter 2, I discussed three blended learning studies conducted in elementary classrooms (Macaruso, 2020; Prescott et al., 2016; Truitt & Ku, 2018). The first study was conducted by Macaruso and his team in 2020 with students in grades kindergarten through fifth. The students in the treatment group that used the Core5 blended learning program showed significantly higher posttest scores than students who did not participate in a blended learning model. This study showed that the use of blended learning can lead to more academic growth when compared to students who do not participate in blended learning.

I highlighted another blended learning study conducted by Prescott and associates in 2016. The study examined at the Core5 program with students in grades kindergarten through fifth at one Title 1 urban elementary school. There was no control group in this study. All students in grades kindergarten-fifth grade except for fourth grade showed improvement. Both Core5 studies showed that the use of blended learning can lead to more academic growth with students than regular whole class instruction. Three participants in my study stated that their students' test scores are better than those of other teachers in their grade level not using MCP, and many participants discussed growth observed with learners at all levels.

A third study was reviewed in Chapter 2 that was conducted by Truitt and Ku in 2018. This study was conducted with 31 students in third grade at a high poverty school who participated in blended learning in their classroom daily using a station rotation model during both math and reading. Students completed questionnaires and interviews at the middle and end of the semester to gauge their feelings on the use of the rotation

blended model of learning. The students enjoyed the way the content was presented and liked working on the computer as one of their rotations. The students felt like they learned more than a traditional classroom model. Katherine said that she has students give her feedback on MCP and her students all said they enjoy using MCP.

Blended learning gives students an opportunity to work independently and with the teacher. As shown in the studies above, blended learning helps students show higher levels of achievement and helps with student engagement. Blended learning formats are a good alternative to traditional teaching methods that only provide whole group learning.

Discussion of Self-Paced Learning

The second core component of the MCP model is self-paced learning. I discussed two self-paced learning studies. The first study was conducted by Palaigeorgiou and Papadopoulou in 2018. This study was conducted with fifth and sixth grade students in Greece to determine if self-paced learning would be a good model for other elementary classes to use. Results showed that students made a significant rise in scores from pre and post-tests. Is found that the elementary students responded positively to the learning approach. Teachers also found that self-paced learning worked well with these students. Some teachers noted that students who could be difficult at times did a better job of working quietly and showing dedication.

The early childhood teachers that use MCP in my study expressed how self-paced learning worked for their students as well. Through observations, I was able to view how the students could independently work through assigned learning tasks at their own pace.

Another study based on self-paced learning was completed by Astuti and his associates in 2022. In that study, fourth and fifth graders in Indonesia were participating in Islamic Religious Education through self-paced learning. Data were collected by looking at student success with learning outcomes and teacher and headmaster interviews. Findings showed that students were successful with learning outcomes and that the teachers felt like they could be more creative and develop ways to present academic content in more interesting formats than before. Participants that were part of the MCP study, like the teachers in this study, expressed how self-paced learning is a good alternative to traditional teaching methods.

Findings from these two prior studies and the current MCP study show that self-paced learning is an effective tool to use with students in both early and upper elementary. Study findings showed that self-paced learning allows students to complete work at their own pace, they can work slower if needed and not feel stressed by other students that finish quicker. Students who finish quickly can move on without having to ask what is next or wait on students that are still completing their work.

Discussion of Mastery-Based Grading

The third core component of MCP is mastery-based grading. I was able to learn how teachers participating in this study use mastery checks through the interviews and observations. Three participants mentioned the use of mastery checks to help drive instruction for small groups. In four of the five classrooms observed, I was able to see the use of mastery checks with students. Students had the opportunity to work with the teacher or complete an alternate activity based on a mastery check grade. Mastery checks

are a good way for teachers to check in with students to see what they do and do not understand. Participants in this study said that using mastery checks as part of their MCP allowed them to identify which students were struggling before it came time for an assessment. This allows teachers to intervene prior to student failure.

Implications

Findings from this study show that the participants found MCP to be useful in their classrooms. The participants found that they could differentiate their instruction efficiently to help provide opportunities for students to make optimal academic growth. Although there are some barriers associated with the implementation of MCP, participants believed the positive results observed from using MCP make this blended model worth implementing with their students. Findings from this completed research study may be beneficial to school administrators, school technology coaches, classroom teachers, and the MCP organization.

Implications for School Administrators and Technology Coaches

1. School administrators should learn about MCP and the impact on learning and empower teachers to implement this model.
2. School administrators should provide opportunities for their MCP educators to observe other MCP educators implementing blended learning practices.
3. Technology coaches should attend MCP training, and provide support to teachers regarding different technology resources.

4. Facility technology coaches should arrange observations for MCP educators of teachers who implement this blended learning model.

Implications for Early Childhood Classroom Teachers

1. Teachers should be facilitated to attend MCP training to learn about the program, so they are aware of the time commitment.
2. Teachers should work closely with MCP mentors, technology coaches, and other MCP teachers to develop their resources.
3. Teachers should include in their planning time to record videos, learning paths, and prepare for small group instruction to meet all student needs.

Implications for Modern Classrooms Project Organization

1. MCP should offer more examples of units for early childhood classrooms.
2. MCP should have mentors checking-in during the school year with teachers who are implementing the model for the first time.
3. MCP should try to align mentors with participants' grade levels so they can offer feedback that is appropriate for different age groups.
4. MCP should target school districts with low academic scores.

Limitations

The research sample comprised of eight participants. I had originally planned on recruiting more participants for the study. However, I was limited on the number of teachers to recruit from the Silver Springs City school district because some of the early

childhood teachers that are implementing MCP in their classrooms did not complete the full online training. Also, some teachers who did meet the criteria did not agree to participate in the study. I was limited to the classrooms that could be observed due to geographical constraints. Observations outside of the state where I live were not logistically feasible. I hoped to gain more participants for the interview portion of the study, but finding teachers that met the criteria and were willing to participate was challenging.

Critiques of MCP

I found that the early childhood educators that participated in this study do find implementing MCP with their students useful, yet I identified some concerns when using MCP. Early childhood students can potentially exhibit undesired behaviors when using this blended learning approach. Young students with the independence to self-pace may get off track. Another concern is that young students may struggle with navigating the technology without teacher assistance. A third challenge for early childhood educators is the extra time it takes to make videos and prepare for MCP. Teachers are teaching in small groups and on the computer at the same time with the use of their videos. The teachers require more planning time to prep the small group lessons and record the videos, which puts more work on teachers.

Recommendations for Future Research

First, this study examined teacher perceptions, attitudes, and beliefs of the use of MCP in early childhood classrooms from the perspective of eight teachers. While all

these teachers like using MCP and feel that their students show growth, no statistical data were collected to evaluate student growth. Future research could be conducted to determine how students in MCP classrooms perform academically when compared to students not participating in MCP classrooms. Second, this research was conducted in one school district, with additional two participants from out of state. Hence, the findings are not generalizable to other research studies. Future research could be conducted in more than one different school district setting to have more generalizable findings to evaluate how students in different areas show growth using the MCP model.

Conclusion

The results of this study found that MCP is not only successful in secondary classrooms, but was perceived to have positive impact on teaching in early childhood classrooms as well. Early childhood educators were satisfied with the MCP model. Using MCP, teachers can teach in two places at the same time with the use of teacher- made videos and small groups. The increased use of small groups allows students to receive instruction that is individualized for them to flourish. Self-paced learning helps all learners be able to work at their own pace. Mastery checks allow students to show what they know and get the opportunity to try again with concepts they may have struggled with the first time. Teachers who are considering changing their method of teaching from whole group instruction to a more student-centered teaching should explore the trainings offered by MCP.

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APPENDIX A

INFORMED CONSENT FORM FOR TEACHER PARTICIPANTS

CONSENT FORM TO BE PART OF A RESEARCH STUDY

Title of Research: A Case Study of the Effectiveness of the Modern Classrooms Project in Early Childhood Classrooms

UAB IRB Protocol #: IRB-300011544

Principal Investigator: Christina Arriagada with Grace Komol Jepkemboi

Sponsor: UAB School of Education, Department of Curriculum and Instruction

General Information	You are being asked to take part in a research study. This research study is voluntary, meaning you do not have to take part in it and may end at any time. The procedures, risks, and benefits are fully described further in the consent form.
Purpose	The purpose of this research study is to explore early childhood teachers' perceptions, attitudes, and beliefs of the effectiveness of the Modern Classrooms Project (MCP) in kindergarten through third grade classrooms.
Duration and Visits	Participation in this study will include a 45-minute interview about your perceptions, beliefs, and effectiveness of MCP in your classroom. We will ask to observe the classrooms of teachers living in the same geographical area as I during a lesson that implements MCP one time for 20-minutes.
Overview of Procedures	Participation in this study will include a 45-minute interview about your perceptions, beliefs, and effectiveness of MCP in your classroom. These interviews will take place face-to-face or through HIPAA-compliant Google Meets which will include video and audio recording. All interviews will be recorded for transcribing purposes. Teachers living in the same geographical area as I, will be asked to submit your lesson plan to I documenting your use of MCP. Your classroom will be observed during a lesson that implements MCP one time for 30-minutes. Although I will know your identity and contact information, the information will be kept separate from your video

	recordings and interview responses, and this information will be destroyed as soon as it is no longer needed.
Risks	The most common risks include loss of confidentiality.
Benefits	You may not directly benefit from participating in the research. There is a potential to grow the body of research about how early childhood educators perceive the effectiveness of the Modern Classrooms Project in their classrooms.
Alternatives	If you do not want to take part in the study, your alternative is not to participate.

Purpose of the Research Study

We are asking you to take part in a research study. The purpose of this research study is to explore early childhood teachers' perceptions, attitudes, and beliefs of the effectiveness of the Modern Classrooms Project (MCP) in kindergarten through third grade classrooms. You are being asked to participate because you meet the criteria-you are a kindergarten, first, second, or third grade teacher, you have completed the MCP training, and implement the MCP model in your classroom. This study plans to enroll 20 teachers.

Study Participation and Procedures

If you agree to participate in this study you will be interviewed for 45-minutes about your perceptions, beliefs, and effectiveness of MCP in their classrooms. For teachers living in the same geographical area as I, your classroom will be observed during a lesson that implements MCP one time for 20-minutes.

Additional Information:
The private information collected as part of the research will not be used or distributed for future research studies even if identifiers are removed.

Risks and Discomforts

The only risk associated with this study is breach of confidentiality.

There may also be risks that are unknown at this time. You will be given more information if other risks are found.

Benefits

You may not directly benefit from participating in this research study. There is a potential to grow the body of research about how early childhood educators perceive the effectiveness of the Modern Classrooms Project in their classrooms.

Alternatives

The alternative is to not participate in this study.

Confidentiality and Authorization to Use and Disclose Information for Research Purposes

Federal regulations give you certain rights related to your personal information. These include the right to know who will be able to get the information and why they may be able to get it. The principal investigator must get you authorization (permission) to use or give out any personal information that might identify you.

What information may be used and/or given to others?

All identifying information will be removed before data is shared with others. Those that may have access to data include the principal investigator and the principal investigator's dissertation committee. This information may include information shared with interviews of observations.

Who may use and give out this information?

Your personal information will only be shared by the principal investigator to those involved in supporting the study, including the principal investigator's dissertation committee.

Who might get this information?

All individuals/entities listed in the informed consent document(s), including but not limited to, others performing services related to the research (whether at UAB or elsewhere). Your information may also be given to the sponsor of this research. "Sponsor" includes any persons or companies that are working for or with the sponsor, or are owned by the sponsor, or are providing support to the sponsor (e.g., contract research organization).

Information about you and your health which might identify you may be given to:

- the Office for Human Research Protections (OHRP)

1. Department of Health and Human Services (DHHS) agencies

2. the University of Alabama at Birmingham - staff working on the research study (whether at UAB or elsewhere); other operating units of UAB as necessary for their operations; the UAB IRB and its staff

Why will this information be used and/or given to others?

This information may be shared to facilitate the completion of this study, including the guidance of the principal investigator's dissertation committee.

What if I decided not to give permission to use and give out my personal information?

By signing this consent form, you are giving permission to use and give out the information listed above for the purposes described above. If you refuse to give permission, you will not be able to be in this research.

May I review or copy the information obtained from me or created about me?

You have the right to review and copy the information obtained in this study. However, if you decide to be in the study and sign this permission form, you will not be allowed to look at or copy your information until after the research is completed.

May I withdraw or cancel my permission?

Yes, but this permission will not stop automatically. The use of your personal information will continue until you cancel your permission.

You may withdraw or take away your permission to use and disclose your information at any time. You do this by sending written notice to the principal investigator. If you withdraw your permission, you will not be able to continue being in the study.

When you withdraw your permission, no new information which might identify you will be gathered after that date. Information that has already been gathered may still be used and given to others. This would be done if it were necessary for the research to be reliable.

Voluntary Participation and Withdrawal

Whether or not you take part in this study is your choice. There will be no penalty if you decide not to be in it.

You are free to withdraw from this study at any time. Your choice to leave the study will not affect your relationship with this institution. Please contact the principal investigator if you wish to withdraw from the study.

You may be removed from the study without your consent if the sponsor ends the study, if the principal investigator believes it is not in your best interests to continue, or you are not following study rules.

Cost of Participation

There will be no cost to you for participating in this study.

Payment for Participation

There is no payment for participating in the interview. Teachers participating in the interview and classroom observation will be paid $10 in the form of an Amazon gift card.

New Findings

You will only be told by the principal investigator if new information becomes available that might affect your choice to stay in the study.

Questions

If you have any questions, concerns, or complaints, please contact the principal investigator or the Faculty Advisor, Dr. Grace Jepkemboi. You may contact Christina Arriagada at 205-329-4452 or carriaga@uab.edu. Dr. Jepkemboi can be contacted at 205-934-6674.

If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact the UAB Office of the IRB (OIRB) at (205) 934-3789 or toll free at 1-855-860-3789. Regular hours for OIRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday.

Legal Rights

You are not waiving any of your legal rights by signing this consent form.

Your signature below indicates that you have read (or been read) the information provided above and agree to participate in this study. You will receive a copy of this signed consent form.

Signature of Participant Date

Signature of Person Obtaining Consent Date

APPENDIX B

TEACHER INTERVIEW

Background

1. Please tell me a little bit about your background. How long have you been teaching, and at which grades/subject areas? How many years have you used the MCP model in your classroom?

Modern Classrooms Training (PD)

2. Did you feel prepared to implement Modern Classrooms effectively when you started? Please explain.
3. Across the year, what supports were most helpful to you in implementing your Modern Classroom?
4. What professional development, if any, do you feel you still need to better use Modern Classrooms with your students?

Modern Classrooms Implementation

5. What does implementation of Modern Classrooms look like in your classroom?
6. How, if at all, has implementation changed across the school year?
7. What has been easy about implementing the MCP approach?
8. What has been challenging?

Teacher Impact

9. How has Modern Classrooms affected your ability to deliver academic content?
10. What impact, if any, has Modern Classrooms had on your relationships with your students?
11. To what extent has Modern Classrooms affected your attitudes towards teaching as a career?

Student Impact

12. How, if at all, do you think the MCP approach has impacted student learning so far this year?
13. In terms of social-emotional growth, to what extent has MCP impacted students?
14. Do you believe the Modern Classroom approach meets the needs of most of your students? Why or why not?

Overall Perceptions

15. What are the strengths of the Modern Classrooms approach?
16. What suggestions do you have for improving the program?
17. Would you recommend Modern Classrooms to other teachers? Why or why not?
18. What barriers have you encountered with the implementation of Modern Classrooms?

Observation

19. Would you be willing to let me observe your classroom for one 20 minutes while your students participate in a lesson using the MCP approach?*
20. Would you be willing to send your lesson plan for the lesson using the MCP approach to be observed to me one week prior to the observation? *

*Questions 19 and 20 were added by me to the original list of interview questions.

Morrison, J., Cook, M., Eisinger, J., & Ross, S. (2021). The Modern Classrooms Project: Evaluation results for the 2020-2021 school year. Center for Research and Reform in Education (CRRE), Johns Hopkins University.

APPENDIX C

MCP CLASSROOM OBSERVATION PROTOCOL

Observer: _____ Date: _____ Grade: _____

Number of students: _____ Lesson Concept: _____

Lesson Plan

Question	Yes	No	Other Notes
Is the lesson topic clearly stated in the lesson plan?			
Is the use of MCP notated in the lesson plans?			
Is there a notation of small group/individual instruction occurring in the classroom during the implementation of MCP?			

Descriptive Notes	Reflective Notes

Student Learning Paths

Question	Yes	No	Other Notes
Did the learning path include a teacher-created video?			
Does the learning path align with the teacher's lesson plans?			

Descriptive Notes	Reflective Notes

MCP Components

Question	Yes	No	Other Notes
Are students able to work independently?			
Are students participating in a blended learning format?			
Are students able to self-pace/work at their own pace?			
Is there evidence of mastery-based learning?			
Is the teacher conducting small groups/working with individual learners?			

Descriptive Notes	Reflective Notes

APPENDIX D

GATEKEEPER LETTER AND CONSENT

Board of Education

[redacted]

March 21, 2023
Research Requests

Title: Teachers' Perceptions, Attitudes, and Beliefs of the Modern Classrooms Project in Early Childhood Educators Classrooms

Researcher Name: Christina Arriagada

Researcher Institution: UAB

School Locations where research to be performed: All Elementary Schools

Contact at local school: tech coaches and K-3rd grade teachers

Approval Status: Preliminary approval

Proposal: What are early childhood educators' perceptions, attitudes, and beliefs of the effectiveness of the blended learning instructional model known as the Modern Classrooms Project in their classrooms?

I will need to review your IRB approved protocols prior to the start of research. [redacted] will be your point of contact with [redacted]. We will need to discuss how you will communicate the option to participate in your research prior to sending information out to schools. The decision to grant research approval can be reconsidered at any time.

Sincerely,

[redacted]

APPENDIX E

MCP INTERVIEW RELEASE FORM

Modern Classrooms Project
15 14th Street SE
Washington, DC 20003

Sep 22, 2023

Christina Arriagada
Ph.D. Candidate
University of Alabama Birmingham School of Education
1150 10th Ave S
Birmingham, Alabama 35233

Subject: Release of Survey Instrument

Dear Christina,

We are pleased to grant you permission to use the instrument titled "Teacher Interview Protocol" (hereafter referred to as "the Instrument"), which was developed with and is the intellectual property of the Modern Classrooms Project (MCP).

This release allows you to use the Instrument for the sole purpose of conducting educator interviews in your dissertation project. This permission is effective from the date of this letter and remains valid until December 31, 2024, unless otherwise specified in writing.

By accepting this release, you agree to the following terms and conditions:

5. The Instrument shall be used exclusively for the stated research/project purposes as communicated in your request.

2. You acknowledge and agree that the Instrument is protected by copyright laws and proprietary rights of MCP. The ownership and intellectual property rights of the Instrument shall remain with MCP at all times.

6. In any publications, reports, or presentations resulting from the use of the Instrument, you should give proper credit and attribution to MCP. The following citation should be included:

"Morrison, J., Cook, M., Eisinger, J., & Ross, S. (2021). The Modern Classrooms Project:
Evaluation results for the 2020-2021 school year. Center for Research and Reform in Education (CRRE), Johns Hopkins University."

7. You should exercise reasonable care to protect the confidentiality and security of the Instrument. The Instrument should not be shared with any third parties without prior written consent from MCP.

8. MCP shall not be held liable for any direct, indirect, incidental, or consequential damages arising from the use of the Instrument.

By signing this letter below, you agree to abide by the terms and conditions outlined in this release and to use the Instrument responsibly and ethically.

Christina Arriagada

_____
Christina Arriagada, Ph.D. Candidate
University of Alabama Birmingham, School of Education
Date:

Emily Persons, Research & Evaluation Manager
Modern Classrooms Project
Date: Sep 22, 2023

We trust that this release will facilitate the successful use of the survey Instrument in your research/project. Should you have any questions or require further clarification, please do not hesitate to contact us.

Thank you for your cooperation and interest in our survey Instrument.

Sincerely,

Emily Persons, Ph.D.
Director of Research & Evaluation
Modern Classrooms Project
emily.persons@modernclassrooms.org

APPENDIX F

IRB APPROVAL LETTER

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

470 Administration Building
701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 |
irb@uab.edu

APPROVAL LETTER

TO: Arriagada, Christina Renee

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance # FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)
IORG Registration # IRB00012550 (IRB 03)

DATE: 16-Nov-2023

RE: IRB-300011544
IRB-300011544-003
A Case Study of Effectiveness of the Modern Classrooms Project in Early Childhood Classrooms

---

The IRB reviewed and approved the Initial Application submitted on 08-Nov-2023 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

Type of Review:	Expedited
Expedited Categories:	6, 7
Determination:	Approved
Approval Date:	14-Nov-2023
Approval Period:	Expedited Status Update (ESU)
Expiration Date:	13-Nov-2024

Although annual continuing review is not required for this project, the principal investigator is still responsible for (1) obtaining IRB approval for any modifications before implementing those changes except when necessary to eliminate apparent immediate hazards to the subject, and (2) submitting reportable problems to the IRB. Please see the IRB Guidebook for more information on these topics.

The following apply to this project related to informed consent and/or assent:

- Waiver (Partial) of HIPAA

Documents Included in Review:

- IRB EPORTFOLIO
- IRB PERSONNEL EFORM

To access stamped consent/assent forms (full and expedited protocols only) and/or other approved documents:
1. Open your protocol in IRAP.
2. On the Submissions page, open the submission corresponding to this approval letter. NOTE: The Determination for the submission will be "Approved."
3. In the list of documents, select and download the desired approved documents. The stamped consent/assent form(s) will be listed with a category of Consent/Assent Document (CF, AF, Info Sheet, Phone Script, etc.)

APPENDIX G

LESSON PLANS

Prior to classroom visits, the participants sent their lesson plan to I. Below is a chart that shows what each participant sent to I for their lesson plan during the time their class was observed.

Date:	1/24/24	1/25/24	1/25/24	1/29/24	1/31/24
Grade /Teacher:	Third/ Sara	First/ Katherine	Kindergarten/ Leslie	Third/ Laura	Third/ Charlotte
Lesson:	English Language Arts -Context clues -Irregular plurals - Small groups	Alabama History	English Language Arts -Phonics -Phonemic awareness -Independent work and small groups	Math -Use Patterns to Multiply	Math -Using Properties to Multiply

APPENDIX H

LEARNING PATHS

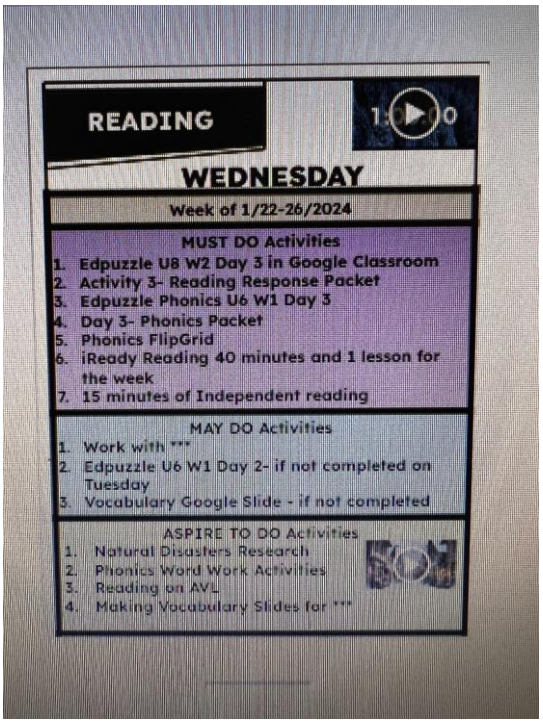


Figure 4. Third grade English language arts block: Sara's class.

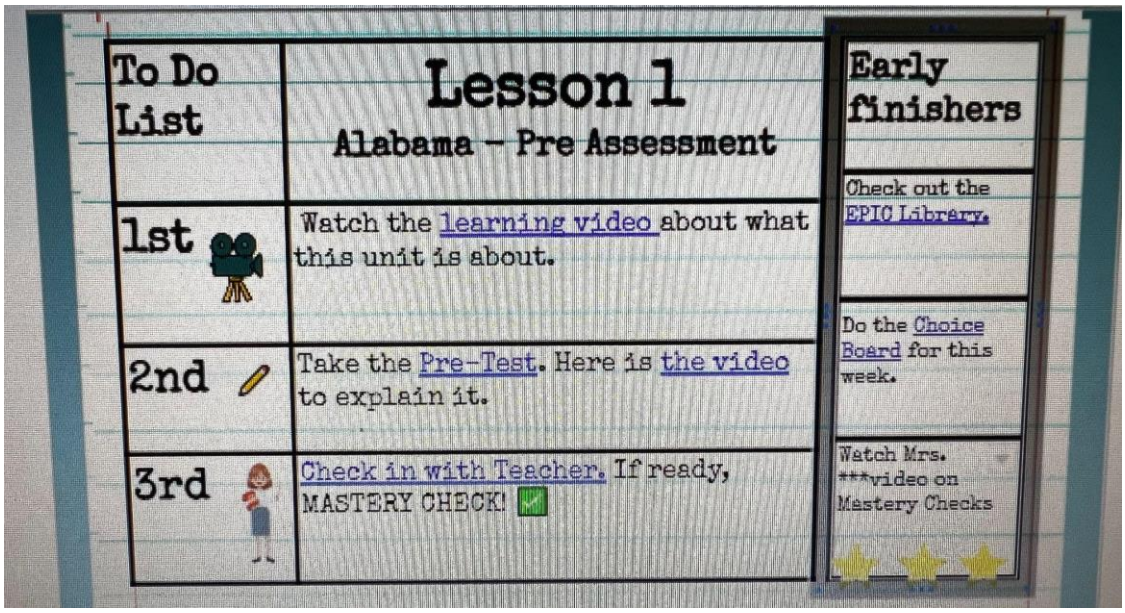


Figure 5. First grade Alabama History learning path: Katherine's class.

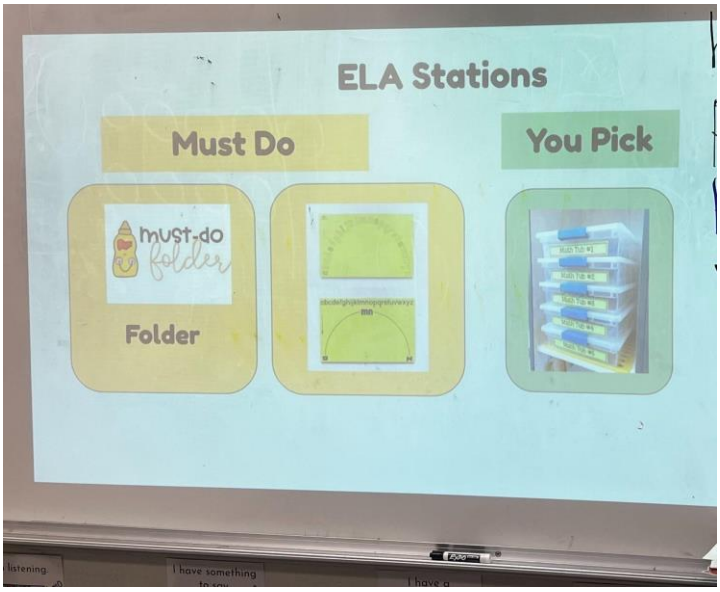
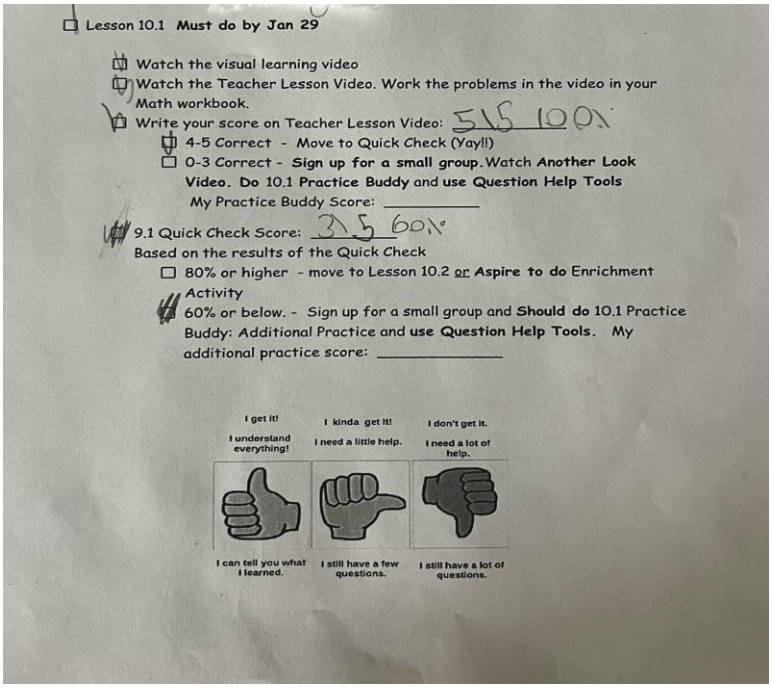


Figure 6. Kindergarten learning path: Leslie's class.


Lesson 10.1 **Must do by Jan 29**

Watch the visual learning video

Watch the Teacher Lesson Video. Work the problems in the video in your Math workbook.

Write your score on Teacher Lesson Video: 5\5 100%

4-5 Correct - Move to Quick Check (Yay!!)

0-3 Correct - **Sign up for a small group.** Watch **Another Look Video. Do** 10.1 **Practice Buddy** and **use Question Help Tools**

My Practice Buddy Score: _____

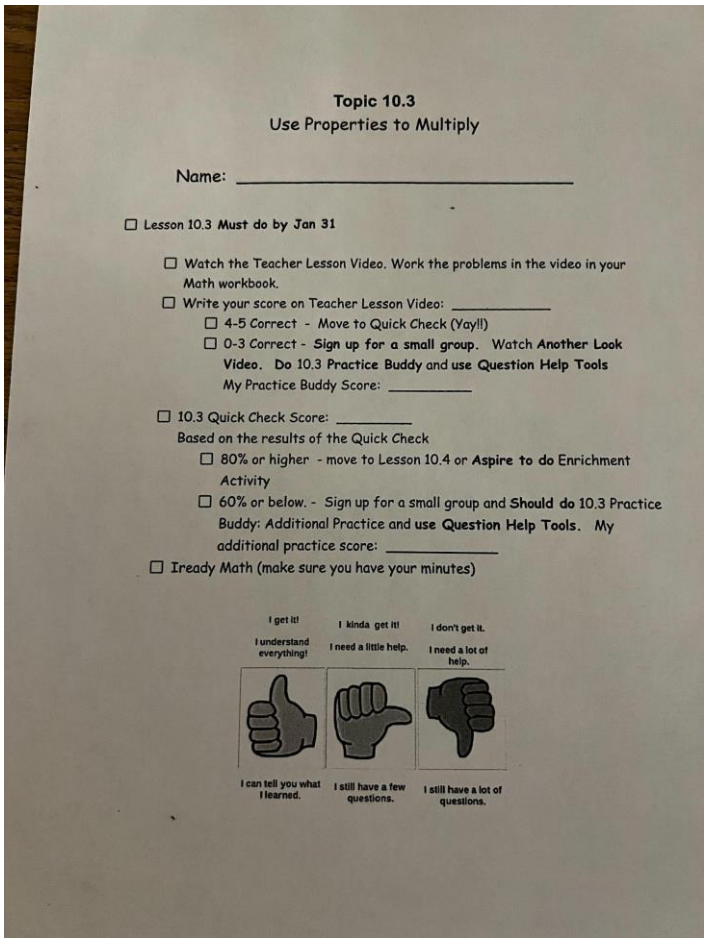
9.1 Quick Check Score: 3\5 60%

Based on the results of the Quick Check

80% or higher - move to Lesson 10.2 or **Aspire to do** Enrichment Activity

60% or below. - Sign up for a small group and **Should do** 10.1 Practice Buddy: Additional Practice and **use Question Help Tools.** My additional practice score: _____

I get it!	I kinda get it!	I don't get it.
I understand everything!	I need a little help.	I need a lot of help.
I can tell you what I learned.	I still have a few questions.	I still have a lot of questions.



Topic 10.3
Use Properties to Multiply

Name: _____

☐ Lesson 10.3 **Must do by Jan 31**

- ☐ Watch the Teacher Lesson Video. Work the problems in the video in your Math workbook.
- ☐ Write your score on Teacher Lesson Video: _____
  - ☐ 4-5 Correct - Move to Quick Check (Yay!!)
  - ☐ 0-3 Correct - **Sign up for a small group.** Watch **Another Look Video. Do** 10.3 **Practice Buddy** and **use Question Help Tools**
    My Practice Buddy Score: _____
- ☐ 10.3 Quick Check Score: _____
  Based on the results of the Quick Check
  - ☐ 80% or higher - move to Lesson 10.4 or **Aspire to do** Enrichment Activity
  - ☐ 60% or below. - Sign up for a small group and **Should do** 10.3 Practice Buddy: Additional Practice and **use Question Help Tools.** My additional practice score: _____
- ☐ Iready Math (make sure you have your minutes)

Note. Third grade math learning paths: Laura and Charlotte's classes.

APPENDIX I

MEMBER CHECKING EMAIL

Dear Participant-,

Thank you again for taking time out of your busy schedule to meet with me. I have attached a summary of our interview. If you feel any information is incorrect, please let me know. Thanks again!

Sincerely,

Christina Arriagada

APPENDIX J

WRITTEN PERMISSION FROM THE PUBLISHER

Dear Christina,

Richard E. Mayer, *Multimedia Learning* © Richard E. Mayer 2021, published by Cambridge University Press
(ISBN: 9781107187504)

Thank you for your request to reproduce *Figure 2.2 Cognitive theory of multimedia learning* from the above title in your forthcoming PhD thesis, for non-commercial publication. Cambridge University Press are pleased to grant non-exclusive permission, free of charge, for this specific one time use, on the understanding you have checked that we do not acknowledge any other source for the material. This permission does not include the use of copyright material owned by any party other than the author. Consent to use any such material must be sought by you from the copyright owner concerned. Please ensure full acknowledgement appears in your work.

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Kind regards,

Georgia Stratton
Business Development Associate, Academic Publishing

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