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The Effect of Mindful Practices on the Independent Learning Process of Third-Grade Montessori Students

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The Effect of Mindful Practices on the Independent Learning Process of Third-Grade Montessori Students

by

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DEDICATION

This dissertation is dedicated to my family and friends who have been steadfast fixtures in my life as they supported me throughout this three-year journey. I would like to recognize my parents who have always pushed me to work hard, remain strong in the face of adversity, and most of all, to love what I do and do what I love. My mother-in-law, who has a silent fire within her, while humbly reserved she is passionate about the children and the parents she serves. I aspire to be half the educator she has been. Dr. Theresa Turner, who inspired me to take the leap and join this doctoral program. She is a great mentor and a true exemplar for what it means to live MINDFULLY. My “sisters” in yoga who have continued to grow and learn with me every day. Last but not least, I would like to dedicate this dissertation to my husband of 11 years. While our time together was too short, he was always without reservations my biggest fan, my best friend, my strongest advocate, and an unwavering grounding force in my life. While he is not here to see the completion for this journey, I know that he is proud.
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ABSTRACT

The purpose of the study was to examine the impact mindfulness practices would have on the independent learning processes of third-grade students in a Montessori setting. For the purpose of the study, independent learning processes were measured using three parameters: (a) self-reports of perceived learning on-task and off-task behaviors, (b) students’ ability to effectively use mindfulness practices autonomously as a self-regulating behavior when off-task, and (c) teacher-researcher’s observations, along with teacher-participant’s and instructional assistant’s reporting, of improved autonomous learning behaviors and students’ autonomous use of mindfulness practices as a self-regulating behavior. The study occurred over a five-week period during the 2018 Spring Semester. A mixed-methodology was used to collect data. The study results indicated that the implementation of a mindfulness intervention had a positive impact on the learning perceptions of third-grade students in the Montessori setting.

Keywords: action research, mindfulness, mindful meditation, Learner-centered schools, Progressive educators, Montessori Method, sensorial learning, 21st century learning skills, cognitive theory, executive functioning, Social and Emotional Learning
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LIST OF ABBREVIATIONS

CRT ................................................................................... Curriculum Resource Teacher
EF .................................................................................... Executive Functioning
FERPA ........................................................................... Family Educational Rights and Privacy Act
IEP ................................................................................... Individualized Educational Plan
LEM .................................................................................. Lower Elementary Montessori
LTP ..................................................................................... Long-Term Learning
MBSR .............................................................................. Mindfulness Based Stress Reduction
MMM .................................................................................. Mindful Meditation Model
SEL ..................................................................................... Social and Emotional Learning
CHAPTER ONE

INTRODUCTION

Mindfulness is defined as the autonomous state of being aware of a present moment in a non-judgmental way. The Western practice of mindfulness, derived from ancient Eastern meditation practices, was originally developed by psychologist Jon Kabat-Zinn in the 1970s (Costello & Lawler, 2014; Kabat-Zinn, 2003; Purser & Milillo, 2015). Kabat-Zinn’s (2003) Mindfulness Based Stress Reduction (MBSR) model, which taught mindfulness practices to adults suffering from chronic stress, pain, and illness. His work has been influential in laying the groundwork for the use of mindfulness meditation in Western medicine and psychology over the past few decades. Research supports the use of MBSR practice as it has shown promising effects on health, improved immune defenses, decreased stress levels, decreased pain levels in patients, and increased brain function (Kabat-Zinn, 2003).

More recently, mindfulness practices have shown to be beneficial in the educational setting. This new and building research has shown mindfulness to be effective in increasing the autonomous behaviors of executive functioning (EF) (Black & Fernando, 2013 Flook, Smalley, Kitil, Galla, Kaiser-Greenland, Locke, Ishijima, & Kasari, 2010), self-regulation (Burke, 2012; Leland, 2015; Wilson & Dixon, 2010), and stress reduction (Broderick & Metz, 2009; Costello & Lawler, 2014; Elder, Nidich,

---

1 Executive Functioning are a set of cognitive processes that allow a person to carry out routine tasks (Flook et al., 2010; Howell, Sulak, Bagdy, Diaz, & Thompson, 2013).
Colbert, Hagelin, Grayshield, Oviedo-Lim, Nidich, Rainforth, Jones, & Gerace, 2011; Felver, Tipsord, Morris, Racer, & Dishion, 2014; Mendelson, Greenberg, Dariotis, Gould, Rhoades, & Leaf, 2010; Oberle, Schonert-Reichl, Lawlor, & Thomas, 2012). In light of the potential benefits mindfulness practices present for the field of education, it has been determined that the inclusion of mindfulness practices within an academic setting has the potential to produce positive effects when considering the independent learning processes of students.

The breadth of work that can be found through an academic search is in part dependent on the pioneering work of progressive educators such as Maria Montessori, Rudolf Steiner, and Jiddu Krishnamurti. According to Flynn (2016b), these 20th century progressive educators are to be credited with originally bringing mindfulness practices into the classroom setting. Their adoption of mindfulness instruction is evident in their educational doctrine and practices. These learner-centered educators laid the groundwork for how mindfulness practices can be used to enhance metacognitive thinking and self-regulating behaviors in students.

Montessori believed that learning occurs when “children live wholly in the present, using the wonderful gifts of the present” (Standing, 1984 p. 140). Her belief in making use of the present moment comes to fruition in the Montessori environment as children are aided in developing skills of concentration. Concentration in the Montessori setting, refers to students’ ability to connect to their “inner guide” which has the resulting

---

2 Progressive educators posit that children should be at the center of education, and as such the curriculum should be based on intense observation of children’s needs. What teachers learn from the examination of students should be reflected in an environment that encourages children to learn naturally and to become autonomously driven to learn (Schiro, 2013).
effect of developing children who are able to make more “constructive choices” (Lillard, 2007, p. 107). This Mindfulness practice is developed through concentration lessons that can be facilitated by the teacher. The presence of mindfulness can be observed in the Montessori setting in such activities as the silence game, candle gazing, walking the line, multi-step lessons requiring extended concentration, repetition of lessons, and students’ development of self-awareness demonstrated by working at their individual levels integrating the mind and body (Lillard, 2011).

Ensuring that students develop the capacity to learn independently is particularly consequential for Lower Elementary Montessori (LEM), as it is believed that “children who are regularly interrupted might be unable to develop concentration on their work” or to “tune into [their] postulated inner guides” that allows them to use metacognitive though and make responsible-decisions (Lillard, 2007, p. 108). This is in part why the three-hour uninterrupted work cycle³ was developed and why it is necessary for students to develop independent work habits within this classroom setting.

In addition, Montessori teachers can help students develop effective independent work time habits by offering concrete instruction on how to improve independent learning behaviors which may include metacognitive practices of being self-aware, self-regulating, and shifting behaviors (Flynn, 2016a; Flynn, 2016c). This in effect, suggests that Montessori teachers may need to assist their students with developing effective autonomous learning behaviors. Montessori considered teachers to be facilitators in the

³ The three-hour uninterrupted work cycle is a non-segmented part of the instructional day where the teacher facilitates a learning environment that includes all core learning (Lillard, 2007). During this time the teacher provides individual and small group lessons. Students who are not receiving individual lessons or support and who are not participating in small group learning are responsible for independent practice of skills using their work plan (individualized lesson plan).
academic setting. As facilitators they work in service of their students, conducting observations and creating engaging learning environments, so that the children feel free to make independent work choices during instructional times (such as the three-hour work cycle) (Standing, 1984).

Lillard (2007) reasserts this idea of teacher as facilitator, stating that the teacher is responsible for observing students and understanding when intervening is necessary to provide children with the guidance or structure they need to be autonomously successful in the learning setting. From this, it can be concluded that Montessori teachers in this setting are responsible for providing students with instruction that aids students in developing skills that will benefit them by increasing their independent learning behaviors. Thus, the development of teaching instruction that helps students in assimilating self-regulatory behaviors will provide students with the guidance needed to become more autonomous in their learning.

Furthermore, with an increased emphasis on autonomous learning in the new 21st century learning standards (SC Department of Education, 2015) the state has recognized the need for students to become “independent, reflective learner and contributor to varied societies through self-reliance, self-improvement, constructive interactions with others, and perseverance of life-long learning” (p. 12). Teaching students to be more reflective by analyzing and synthesizing their work habits through metacognitive thinking and self-regulation may provide a strong foundation for autonomous growth. In this way, students will develop the tools necessary to become metacognitive thinkers who have the capacity to be self-aware and to self-regulate behaviors. While teachers have training on how to conduct observations of students and facilitate learning that meets the needs of state and
Montessori standards, teaching students to become autonomous requires additional tools and intervention that are not taught in teaching methodologies.

**Statement of the Problem of Practice**

Learner-centered schools are settings where learning is socially constructed by the teacher(s) and students. In these settings, learners are engaged as acquirers of knowledge and teachers of knowledge, learning is considered multidisciplinary and multidimensional, and the settings are supported by *autonomous* inquiries of learning (Thornton II & McEntee, 1995). In such a setting, students were expected to perform with a high level of autonomy by independently constructing meaning, illustrating reasoning, evaluating learning, and reflecting on what they learned.

The teacher-researcher serves as a Curriculum Resource Teacher (CRT) within the school identified in the study. As a CRT, she works with teachers in the school setting on instructional planning for classes and students. Based on the teacher-researcher’s former experience as a Montessori teacher, she takes a particular interest in the work of one of the teachers from the Lower Elementary Montessori (LEM) setting in the school. This particular teacher instructs a multi-aged group which consisted of first- through third-grade students. A significant amount of the time allotted for core curriculum instruction for this specific classroom setting, is composed of what is known as the Uninterrupted Work Time (a three-hour non-segmented work cycle) facilitated by the teacher-participant and an instructional assistant.

---

4 Learner-centered schools are learning settings that provide an environment where students are able to become active autonomous participants in their learning. These schools emphasize learning in the present moment through the development of a well-prepared learning environment that incites inquiry-based learning (Shiro, 2013; Thornton II & McEntee, 1995).
During the three-hour work cycle, students are responsible for independently managing and completing daily lessons with the guidance of their individualized work plans (personalized lesson plans). To facilitate learning, the teacher is responsible for introducing new lessons, offering support, observing student progress, and providing formative feedback. In addition to the teacher’s role, the instructional assistant provides support to students, observes student progress, and completes classroom clerical needs.

Discussions held between the teacher-participant and the teacher-researcher, revealed concerns about students who struggled with incorporating autonomous behaviors related to Social and Emotional Learning (SEL). The struggle to incorporate autonomy was exhibited in the following student learning behaviors: inconsistency when completing self-managed work, struggle with confidence in following procedures for lessons and the work they produce, and inconsistency in responsible decision making. Having realized the potential influential effect mindfulness practices can have on learning, the teacher-researcher wondered what impact these practices would have on students who struggle to gain independence in their learning within a LEM classroom.

In this study the teacher-researcher and the teacher-participant examined the inclusion of a mindfulness intervention as a means for promoting more autonomous work behaviors in students. A correlation has been made with inclusion of mindfulness practice and increased students’ autonomous work behaviors, or SEL competencies, including: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Flynn, 2016a).
Research Question

What impact would mindfulness practices have on the independent learning process of third-grade students in a Montessori setting?

For the purposes of this study, independent learning process is defined as the process where by students self-regulate their behavior by means of bringing awareness to their on-task and off-task behaviors during the three-hour work cycle. On-task behaviors were defined as students engaging in work assigned by the teacher either independently, with peers, or with the teacher. Off-task behaviors were defined as a student not engaging in assigned work by the teacher. Off-task behaviors were coded as actively off-task (talking with peers, playing, doodling, or similar behaviors) or as passively off-task (staring off, standing or sitting idly, or similar behaviors.). In the case of this study, students’ perceived learning was measured through three distinct parameters: (a) self-reports of perceived learning on-task and off-task behaviors, (b) students’ ability to effectively use mindfulness practices autonomously as a self-regulating behavior when off-task, and (c) teacher-researcher’s observations, along with teacher-participant’s and instructional assistant’s reporting, of improved autonomous learning behaviors and students’ autonomous use of mindfulness practices as a self-regulating behavior. It is proposed that mindfulness intervention will have a positive impact on students’ perception of their learning, and in effect autonomous learning behaviors will increase.

Purpose

The purpose of this study is to examine the impact of mindfulness practices on the independent learning process of third-grade students in the LEM setting.
Brief Overview of Methodology

According to Dana and Yendol-Hoppey (2014), the process of action research allows educators to explore educational problems or wonderings that are relevant to their educational reality. Action research allows for teachers to become collaborators in their research process and, as a result, allows educators to facilitate change that is relevant to the students they serve. For the presented action study, the teacher-researcher examined the impact mindfulness practice had on third graders’ independent learning process. The examination of this inquiry provided an avenue for the teacher-researcher to evaluate the effectiveness of a possible solution (the impact of mindfulness) to a real-world dilemma (independent learning process). The target of the study was focused around the third-grade students in a multi-aged LEM classroom. The study occurred in four phases: pre-survey, intervention implementation, post-survey, and reflection.

The Four Phases

The first phase included the gathering of student-participants’ self-reported perceptions and beliefs relative to their independent learning process based on SEL competencies, including: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making using a pre-Likert scale. Baseline data were also collected through the use of two pre-Likert scales completed by the teacher-participant and instructional assistant. The first Likert scale collected data on the teacher’s and the instructional assistant’s perception of students’ ability to stay on-task, while the second collected data on their perception of students’ independent employment of mindfulness practices.
The second phase was the implementation of the mindfulness intervention. A five-week mindfulness practice was implemented in the LEM setting three days a week for a duration of 30 minutes. The mindfulness practice consisted of four specific mindfulness activities: imagery/visualization, yoga poses, mindfulness game/activity, and breath work. Data were collected through students’ journaling, teacher-researcher’s field notes, and semi-structured interviews after each intervention session.

The third phase included a post-Likert scale completed by student-participants to gauge if there were any changes in students’ perceptions and/or beliefs after the intervention. A post-Likert scale was also given to the classroom teacher and the instructional assistant to gauge if there were any changes in their perceptions of students’ on-task learning behaviors and use of the intervention practices to self-regulate off-task behaviors.

The final phase involved data analysis that occurred in four steps. First results from individual instruments were examined for trends and outlying data. Second, the trends from each individual instrument were compared to determine if the trends carried through multiple data sets. Third, comparison data were further examined for any overarching themes that emerged as a result of the intervention. Fourth, overall findings were used to develop a future action plan for mindfulness intervention.

**Significance of the Study**

The first significant factor of this study was that it provided data needed to help the LEM teacher-participant improve her instructional practices to use breath work, yoga poses, and awareness activities that aligned with the Montessori methodology. As a facilitator of learning she was able to use the additional strategies learned with students to
assist in their development of autonomous learning behaviors. Through the study it was found that the use of mindfulness practices can be used as a means of self-regulating off-task learning behaviors exhibited by students in the LEM setting.

The second significant factor was the increased awareness students developed overtime for their SEL behaviors. This was identified through students’ increased on-task behaviors and their increased ability to apply mindfulness techniques as a self-regulatory tool. Developing the SEL behavior of self-awareness provides students with the ability to recognize when they are off-task, and as a result to independently re-direct off-task behaviors. Mindfulness is a self-regulatory behavior that requires one to become aware of the present moment. Mindful awareness includes the active directing of focused cognitive thought, bringing awareness to current physiological sensations, and bringing awareness to the practitioner’s immediate environment (Kabat-Zinn, 2005; Cahn & Polich, 2006).

The incorporation of present awareness in an independently-driven learning setting leads to the potential assimilation of more autonomous learning behaviors in students.

The third significant factor of the study is that the teacher-researcher’s findings will provide support for the use of mindfulness practices to district stakeholders. The support will occur throughout the incorporation of these practices in other district settings including school settings and teacher instructional practices. Coinciding with the initial development of the action research study, stakeholders within the school district began to show a growing interest in developing a yoga and mindfulness model that could be used with students and staff members. By bringing to light the comprehensive application of mindfulness instruction, the teacher-researcher is prepared to use the LEM classroom as a
platform to advocate and support a more widespread use of mindfulness practices throughout other settings within the school district.

**Summary of the Findings**

The findings of the study indicated students perceived an increased ability to integrate mindfulness practices as an autonomous self-regulating behavior during the three-hour work cycle. Specifically, the results indicated students perceived an increased awareness of when they felt focused and self-motivated to work and, by contrast, when they felt distracted and off-task in class. The results further showed that students perceived an increased ability to effectively implement and integrate mindfulness practices into the three-hour work cycle, and that they attributed their success in increasing SEL behaviors to the increased use of mindfulness practices. The findings supported the inclusion of mindfulness practices in a LEM classroom, specifically with third-grade students as a means for increasing their SEL behaviors through self-regulating strategies found in mindfulness practice. Based on these results, an action plan has been created from the findings of the action research study. The action plan outlines how the findings will be shared with elementary teachers and district stakeholders. Also, recommendations will be made available for district and school board stakeholders on the incorporation of yoga and mindfulness strategies in the elementary instructional setting.

**Limitations of the Study**

The study was limited by the non-randomized small sample size ($N = 5$), the five-week duration of the study’s intervention, and the different demographic represented in the study population compared to the school population. For these reasons, generalizations of this study cannot be drawn from the results. Access to a larger
randomly selected sample size, and a longer duration period for the intervention could provide more in-depth information about students’ perception of their autonomous use of mindfulness practices as a means of self-regulating their work time habits when they perceived themselves to be off-task or distracted. The extended intervention time would provide students with more time to assimilate habits of integrating mindfulness strategies into their daily use.

**Dissertation in Practice Overview**

Chapter One of the presented Dissertation in Practice (DiP) gives an overview of the current PoP, research question, and purpose statement proposed by the teacher-researcher. Chapter Two includes a detailed description of current literature that relates to and provides the structure for the action research study on mindfulness practices in a multi-aged LEM classroom. Chapter Three provides an account for the mixed-methods methodology used in this study. Chapter Four shares the findings, reflection, and analysis of data as it pertains to the impact of mindfulness instruction on the learning processes of third-grade students in the LEM classroom from the action research study. A summary of the action research study can be found in Chapter Five; including a detailed description of the major concepts, closing thoughts, and suggestions for future research all noted as they relate to the inclusion of mindfulness instruction in a multi-aged LEM classroom.

**Conclusion**

Mindfulness practices are becoming an area of interest within the field of education (Rocco, 2012). Through academic research a correlation has been made between the practice of Mindfulness Meditation and elementary age students’ increased EF behaviors and autonomous SEL. Chapter One laid the framework for the current DiP
including the observed PoP. The PoP of the action research study showed additional strategies were needed to assist students, who struggled with employing autonomy in their academic setting, in developing SEL behaviors. The analysis conducted in Chapter Two: Review of Literature, will demonstrate how mindfulness practices have been shown to have a positive impact on young students’ cognitive functioning, EF skills, self-regulation, and development of SEL competencies.

**Keyword Glossary**

*Action Research:* A spiraling and reflective educational process for testing the impact of methods and practices in an academic setting to determine best practices (Mertler, 2014; Dana & Yendol-Hoppey, 2014).

*Cognitive Theory:* A psychological theory of human behavior through the understanding of brain functions and thought processes (Kabat-Zinn, 2005).

*Executive Functioning:* Cognitive processes (comprised of: working memory, impulse control, metacognitive thinking, emotional responses, and overall behavior) that allow one to carry out everyday tasks (Flook et al., 2010; Howell, Sulak, Bagdy, Diaz, & Thompson, 2013).

*Learner-Centered Pedagogy:* A belief that learning is an active process that is independent to the learner, thus learning is not confined by fixed perspectives but constantly growing and assimilating. This pedagogy emphasizes facilitating learning in the present moment by encouraging critical inquiry by students in a well-prepared learning environment (Shiro, 2013; Thornton II & McEntee, 1995).

*Mindfulness:* The autonomous state of being aware of a present moment in a non-judgmental way (Kabat-Zinn, 2003).
**Mindfulness Meditation:** The active practice of centering of one’s sensory focus on the present moment (Costello & Lawler, 2014; Kabat-Zinn, 2003; Purser & Milillo, 2015).

**Montessori Method:** A learner-centered philosophy and methodology that was developed by Maria Montessori during the first half of the 20th century (Standing, 1984; Lillard, 2007).

**Sensorial Learning:** A form of learning in the Montessori classroom that connects perceptual experiences to cognitive thought (Lillard, 2007; Standing, 1984).

**Social Emotional Learning:** Learning behaviors that encompass the following competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making during the three-hour work cycle (Flynn, 2016a).

**21st century Learning Skills:** Cognitive development that leads to innovation in technology, communication, and critical thinking abilities which allow students to solve complex problems (SC Department of Education, 2015; Costa and Kallik, 2008).
CHAPTER TWO

REVIEW OF LITERATURE

The literature that focuses on the Montessori methodology forms a distinct field of scholarship within the wider body of educational research. Therefore, due to the unique nature of the Montessori setting, the review of literature begins with a discussion on that theme. Following that discussion, a brief overview of mindfulness and the use of this practice in the educational setting is presented. The order of the latter discussion includes themes relative to the effects of mindfulness on cognition, executive functioning, self-regulation, and SEL competencies.

Philosophical Positioning of Montessori

The Montessori curriculum was developed by Maria Montessori during the first half of the 20th century (Lillard, 2007). Originally developed to meet the needs of students who were deemed less sufficient, Montessori was able to refine methods of instruction that foster students’ intellect. Through observation of young children and their responses to the learning setting, Montessori reconstructed the learning environment, role of the teacher, role of the student, and overall philosophy. The methodology focused on developing the whole child, and a curriculum that encourages freedom of learning within limits. As a learner-centered program, Montessori-based classrooms aim to create learners that are autonomous in their thinking, socially and emotionally aware, and who
continually grow academically and spiritually (Howell, et al., 2013; Lillard, 2007).

The Montessori Method possesses a unique quality in the 21st century educational arena (Lillard, 2007). While rooted in progressive methodology, the Montessori Method also gives great emphasis to the back-to-basics movement⁵ (Lillard, 2007). For example, while the Montessori Method is rooted in a discovery learning approach that uses the environment to guide “children closely in their discoveries” (p. 328), this method also follows a spiraling (or reoccurring) curriculum structured around a classical learning: “grammar, mathematics, biology…and a great deal of nomenclature” (p. 328). The Montessori Method balances learner-centered pedagogy and traditional educational models.

In the Montessori setting the environment is used to guide student learning. Within the classroom, the teacher’s role is to develop a well-prepared environment that meets the academic and developmental needs of students which supports their academic progress and growth. The student’s role is to be able to advance using self-regulating behaviors. In Montessori philosophy, the process by which a child attains autonomous self-regulating behavior is known as normalization (Montessori, 1967). Montessori (1967) states, this process requires a level of meditation towards a task, or the regulation of attention toward a task. Mindfulness practice also promotes the use of self-awareness and self-regulation.

The practice of mindfulness complements the work of progressives and learner-centered theorists. By placing cognitive growth in the learners’ hands, using the

⁵ The back-to-basics movement is a movement that gained momentum in the 1970s. This movement advocated for schools to return to earlier methods of instruction by placing a high emphasis on teaching students basic skill areas: reading, writing, and arithmetic (Lillard, 2007).
environment to encourage learning, and building upon learning experiences that focus on the present moment, the child is learning to assimilate self-regulatory skills and autonomous learning behaviors (Lillard, 2011). This aligns with the beliefs of learner-centered theorists like Montessori and Steiner, who believe thinking in and of itself is a natural process. Viewing the act of thinking as a natural process, these theorists further believe that a person cannot be taught how to think, but rather can be led sequentially through the learning process through guided experiences and well-developed environments (Schiro 2013). Settings where students are in need of developing independent learning habits, similar to a Montessori environment, support the needs of the action research study in developing SEL competencies.

**Mindfulness**

Mindfulness is an ancient Buddhist tradition that is over 2,000 years old (Costello & Lawler, 2014; Kabat-Zinn, 2003; Purser & Milillo, 2015). It is from these ancient traditions that the modern Western practice of mindfulness is rooted. According to Kabat-Zinn (2003):

> Mindfulness is the fundamental attention stand underlying all streams of Buddhist meditative practice: the Theravada trading of the counties of Southeast Asia Thailand, Burma, Cambodia, and Vietnam; the Mahayana (Zen) schools of Vietnam, China, Japan, and Korea; and the Vajrayana tradition of Tibetan Buddhism found in Tiber itself, Mongolia, Nepal,

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6 The well-developed environment is one that has been constructed based on the educational needs and interest of students as observed by the teacher. These environments have a space that is free of clutter, furniture that is created to meet the developmental size of students, and purposefully placed materials that call to the interest and attention of students. In this environments learning is sensory and inquiry based. (Lillard, 2007; Schiro, 2013)
Bhutan, Ladakh, and now large parts of India in the Tibetan community in exile. (p.146)

Each of these subdivided groups have their own traditions and sub-traditions of thought that are based on two main discourses passed down by Buddha. These two main discourses are known as: Anapanasati Sutra (Kabat-Zinn, 2003) and Satipatthana Sutta (Purser & Milillo, 2015). Both of these discourses have influence on the *mindfulness practice* that has developed within the Western world over the past 40 years (Kabat-Zinn, 2003). The origin of Western mindfulness came from interpretations derived from travelers who were exposed to Buddhist teachings as they traveled in the Eastern world (Kabat-Zinn, 2003; Purser & Milillo).

During 1970s, mindfulness was becoming part of mainstream American science through the work of molecular scientists like Kabat-Zinn (as cited in Burke & Hawkins, 2012; Costello & Lawler, 2014; Rocco, 2012: Thornton II & McEntee, 1995). Kabat-Zinn conducted medical studies that showed mindfulness had a positive correlation to reducing pain, stress, and anxiety in patients (as cited in Burke & Hawkins, 2012; Costello & Lawler, 2014; Rocco, 2012: Thornton II & Mente, 1995). In the 1980s, mindfulness had made its way into the realm of psychology. Ellen Langer and colleagues are known for bringing light to many of the benefits mindfulness could bring to cognitive studies (Purser & Milillo, 2015; Thornton & McEntee, 1995). In studies testing the effects of transcendental mindfulness, Langer found the treatment of mindfulness had a positive correlation with improved cognitive functioning and flexibility of mind (as cited in Purser & Milillo, 2015; Thornton & McEntee, 1995).
Mindfulness Practice in Education

Mindfulness practices have been taught within early childhood, elementary, and secondary settings. The works of educational pioneers such as Steiner, Krishnamurti, and Montessori embedded the use of mindfulness techniques in their methodology. For example, Steiner who was both an anthroposophical philosopher and an educator, used mindful practices in his educational settings known today as Waldorf schools (Neider, as cited in Steiner, 2017, p. 2). His work revolved around the importance of developing thinking and aspects of perception in the learner. This reference to perception refers to what is known today as mindfulness. In Steiner’s work, he referred to the act of mindfulness as attentiveness. Believing too much emphasis was given to intellect over attentiveness, his aim was to develop schools that provided a counterbalance to schools based on intellectualism. Through his studies he found attentiveness was best accomplished through mindful practices such as breath work and yoga. He believed this new way of learning would free the human psyche from being dominated by machines and the growing technological world. His work with meditative practices set a standard for how meditational practices could be used in the field of education.

A correlation can be made between the work of Jiddu Krishnamurti and the current educational use of mindfulness practice. According to Thapan (2007), Krishnamurti left behind a legacy within the educational realm. Krishnamurti was a yogi, meditative guru, and educator. In consideration of his educational practices, Krishnamurti believed in a Holistic approach to teaching and learning that focused on the learner undergoing a process of self-discovery. He believed by discovering one’s true Self in an honest way a person would reach his full potential. Through practices of silencing the
mind, Krishnamurti believed the learner would be able to “gain an awareness of life in its entirety” (Thapan, 2007, p. 69). To him a still mind, all but dead or disciplined, is creative and full of potential. Like Montessori, Krishnamurti believed in the power of order. For one to become more self-aware there must be structure around him, he must be free to explore his learning within the framework of reasonable boundaries and must learn to still his mind. Much of his work, that focused on implementing yoga within the educational setting, has influenced the present action research study.

The Montessori curriculum aligns with mindfulness practices in its focus on sensorial learning and concentration practices. The sensorial materials provided to students in the Montessori environment were developed with the intention of encouraging students to isolate their sense perceptions (Lillard, 2007). When interacting with the materials students are required to use observational skills as they discriminate sounds, smells, textures, size, and colors as a few examples. This aligns with mindful practices, as the practice of mindfulness requires the practitioner to self-regulate their thought by becoming a nonjudgmental observer of their environment and world (Bai & Scutt, 2009).

Lillard (2007) states, “one outstanding feature of Montessori classrooms is that children concentrate deeply and for long periods of time on their work” (p. 102). In the Montessori environment, concentration is invoked through the use of materials. Lessons are provided by the teacher based on their observations of students. By basing instructional choices on their observations of students, the teacher is able to provide self-correcting materials7 that are developmentally appropriate, meet their cognitive abilities

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7 Self-correcting materials are materials that have a control of error built in so that students are able to receive instant feedback and learn through trial and error independent of the classroom teacher (Lillard, 2007).
(within their zone of proximal development) and meet the students’ demonstrated interest. The materials are developed in a way that allow students to use them autonomously of the teacher and other students. The use of self-correcting materials independent of someone else requires “children to regulate their own attention”. Much like the practice of mindfulness, where concentration is regulated on the present moment (Kabat-Zinn, 2003), students in this setting are regulating their concentration on the lesson they are completing or material they are using in that present moment (Lillard, 2007).

**Emerging Themes**

Over the past decade, the theoretical practice of mindfulness has become an area of interest for educational scholars. The literature available through an academic search revealed a great deal of variety: from the style of implementation, academic setting, age range of study participants, and intended outcomes. The results were limited when searching for literature that resembled the setting and age range of the students in the presented action research study. For this reason, the studies were narrowed to focus on the overarching themes that relate to the development SEL competences. In relation to the focus of the action research study, utilizing mindfulness practices as a tool for increasing students’ autonomous behavior, the following themes were found when cross analyzing literature: cognitive functioning and academic achievement, EF, and self-regulation. Studies conducted have shown a positive correlation to mindfulness practice and an increase in these skills. The research explored in the following four subsections will outline how mindfulness practices have been used in the educational setting and the
effects the inclusion of mindfulness meditative practice has had on cognition, EF skills, and self-regulation.

**The effects of mindfulness on cognition.** Mindfulness is a growing practice of cultivating cognitive development by focusing the mind on the present in a nonjudgmental way. Mindful experiences ignite one’s “memory and remembrance; hence, mindfulness meditation may not involve simply cultivating present-centered, nonelaborative, and nonjudgmental attention, but include remembering the goals of practice based on previous memory and learning” (Kirmayer, 2015, p. 451). In this way, understanding cognitive theory lays the foundation for understanding the potential positive impact mindfulness practice can have on autonomous learning behaviors.

In recent years, studies have been conducted that demonstrate how students’ cognition has been improved through the inclusion of mindfulness practice. Results regarding the impact of mindfulness practice based on Kabat-Zinn’s MBSR model have shown promising effects on improving the cognitive abilities of school-aged children. In a study conducted by Napoli et al. (2005), researchers found that after implementing a 24-week mindfulness intervention including breath work, body-scanning and sensorimotor awareness activities that students improved the cognitive abilities of staying focused and paying attention. Wimmer, Bellingrath, and Stockhausen (2016) tested the impact a mindfulness intervention including sitting meditation and body-scanning would have on fifth-grade students’ cognitive abilities. At the end of the study they found that these students had improved effects of data-driven information processing and cognitive inhibition. Quach, Jastrowski Mano, and Alexander (2016) found that the inclusion of mindfulness meditation was effective in increasing the working memory capacity of
middle school students. The results from these studies suggest that providing students with a mindfulness model that includes similar practices to Kabat-Zinn’s MBSR model could yield positive effects on increasing student cognition.

In addition to the research of MBSR mindfulness meditation practices on student cognition, researchers have also connected the potential benefits transcendental meditation practice. According to Warner (2005), transcendental meditation, which uses mantras and quiet meditative practices, provides educators with a systematic procedure for developing consciousness or awareness. Warner (2005) conducted a study testing if awareness training using transcendental meditation could increase the working memory of children between the ages of 5- to 11-years-old. The study results displayed a positive correlation between working memory and cognitive competence. Warner noted that, working memory and cognitive competence increased after the implementation of transcendental meditation practices.

Similar results were produced in a complex study conducted by So and Orme-Johnson (2001), which included results from three studies. The study tested the effects of transcendental meditation on cognition, specifically fluid intelligence, partial intelligence of non-intellectual abilities (such as physical health and overall well-being), creative thinking, and information processing speed. Results indicated the intervention group demonstrated significant improvements for all variables tested, except for fluid intelligence, when compared to the nonintervention groups (which included the no interest group and the napping group). Results also showed that students who received the transcendental meditation had significant improvement in both their state anxiety levels and their trait anxiety levels in comparison to the nonintervention groups.
Comparisons studies utilizing more than one mindfulness model have also been conducted adding to the descriptive findings that can be found on the use of mindfulness in the educational setting. Rocco (2012) explored the potential of transcendental meditation and mindfulness practice through the findings from other scholarly bodies of research. Her review indicated that research shows mindfulness instruction can be beneficial when integrated into school communities, professional development, and school programs. Additional findings indicated that many researchers are considering the necessity for those providing the mindfulness instruction to practice mindfulness regularly in their daily lives.

Waters, Barsky, Ridd, and Allen (2015) reviewed the findings from fifteen peer-reviewed studies that tested the impact of meditation in the classroom. In totality, the studies reviewed covered two different types of meditation: transcendental and mindfulness. These studies analyzed the effect on 1,797 students from Kindergarten through 12th grade. The studies tested the impact of meditative practices on one or more of the following developmental areas: well-being, social competence, academic achievement, student outcomes, cognitive functions, and/or emotional regulation. Results from all 15 studies indicated that while both mindfulness and transcendental practice had a positive impact on student development, transcendental meditation was more effective in increasing students’ overall EF.

Collectively, the studies demonstrate the positive affects mindfulness interventions can have on cognitive functioning of students. Britton and Sydnor (as cited in Willard and Saltzman, 2015) assert that mindfulness practice is able to have a positive effect on cognitive functioning due to the neuroplasticity of the brain. This allows for the
“brain structure” to “change in response to experience or practice” (p. 405). In consideration of brain development and study findings, it can be determined that the inclusion of practices that support developing more focused awareness of thought, such as mindfulness practice, can be helpful in assisting students with developing control of their cognitive functions.

**The effects of mindfulness on executive functioning.** Executive functioning skills are comprised of a range of cognitive processes which allow one to carry out everyday tasks. Executive functions encompass working memory, impulse control, metacognitive thinking, emotional responses, and overall behavior (Ciairano, Visu-Petra, & Settanni, 2007; Flook et al., 2010; Howell et al., 2013; Lan, Legare, Ponitz, Li, & Morrison, 2011). These EF skills allow students to internalize understanding, allowing them to think critically and to effectively problem solve (Leland, 2015). This strengthened cognitive ability comes from a child’s increased ability to shift both attention and/or response appropriately depending on if the shifting requires choosing “aspects of a stimuli or requires motor responses” (Lan, Legare, Ponitz, Li, & Morrison, 2011, p. 678).

Executive Functioning skills begin to develop in early childhood and continue to advance through adolescence (Roebers, Cimeli, Rothlisberger, & Neuenschwander, 2012; Lan et al., 2011). These behaviors are observable and can be measured based on the proficiency at which a child performs a skill. This observation is supported by research which has shown that while an association between the development of high EF and high academic achievement, a contrasting association between poor EF and low academic achievement also exists (Flook et al. 2010). As such, executive functioning skills are
recognized as skills students need to meet the profile of a 21st century graduate by the state of South Carolina (SC Department of Education, 2015). The following studies explore how mindfulness programs have been used in educational settings as a means for improving EF skills.

In a randomized control study conducted by Flook, et al. (2010), the effect of mindful awareness would have on student EF skills was tested on a group of 64 second- and third-grade students. At the end of the study, the students who received the mindful awareness practice showed greater improvements in EF than students in the control group that did not receive this program. When considering the improvements observed in students EF skills who received the treatment, it was noticed that they specifically improved in the areas of self-regulation, metacognition, and executive control. In a similar 12-week study conducted by Flook et al. (2015), the researchers tested the effects of a mindfulness-based kindness curriculum on student prosocial behavior (an EF skill) on kindergarteners. The study indicated students who received the treatment had a higher increase in prosocial behaviors than students in the control group. Both of these studies show the potential benefits mindfulness interventions can have on developing EF skills of elementary aged children.

Studies have been conducted to test the impact of mindfulness interventions on specific areas of EF including: behavior management, regulating emotions, attention regulation, and stress reduction. In examination of the potential impact mindfulness intervention could have on students’ ability to manage their behaviors Black and Fernando (2013) conducted a 12-week mixed-methods study. The study tested the impact a mindfulness program had on improving elementary age students’ overall behavior. The
results from the study indicated mindfulness practice had a positive effect on students’ ability to pay attention, become engaged during classroom instruction, use self-control, and students’ overall treatment of peers. Wilson and Dixon (2010), tested the effectiveness of mindfulness on a single elementary classroom which had trouble with behavior management. They applied baseline, experimental, baseline withdrawal design during the experimental phase of the study to measure overall changes in behavior. They found a direct positive correlation between improved behavioral outcomes and the implementation of a mindfulness program (Wilson & Dixon, 2010). When comparing the results from the study conducted by Black and Fernando (2013) to the study conducted by Wilson and Dixon (2010), it can be concluded that mindfulness intervention can provide potential benefits to students who struggle with behavioral regulation.

Another aspect of developing strong EF skills lies in the improved ability to regulate emotions. Broderick and Metz (2009) conducted a study examining how intensive mindfulness attention training could be used to help students in regulating their emotional responses. The study implemented a pilot trial using the mindfulness curriculum *Learning to BREATHE* in a private Catholic school for girls. The study included all 120 students from the senior class. The *Learning to BREATHE* program is a curriculum that includes lessons on understanding and regulating thoughts and emotions. At the conclusion of the trial, results showed the mindfulness curriculum significantly increased feelings of calmness and self-acceptance for students in the intervention group as compared to students in the control group.

As a practice, mindfulness has the ability to assist students in developing more productive behaviors (Bertin as cited in Willard & Saltzman, 2015). Felver, Tipsord,
Morris, Racer, and Dishion (2014) conducted a randomized clinical trial using the mindfulness-based intervention program *Mindfulness Family Stress Reduction* on forty-one parent-child dyads. Each dyad was randomly assigned to either the intervention or the control group. The intervention program measured attention behaviors using the Attention Network Test. The program emphasized “self-regulating one’s focus of attention on selected somatic experiences (e.g., the physical sensation of breathing) while not being distracted by other internal (e.g., cognitions) or external (e.g., sounds) stimuli” (p. 7). The results from the eight-week study showed a significant improvement in attention regulation for the participants in the intervention group compared to the results of the participants in the control group.

Schonert-Reichl, Oberler, Lawlor, and Thomson (2012) examined the relationship between the executive control process of inhibition and self-reported dispositional mindfulness in elementary age students from fourth and fifth grades. To examine this relationship, they used a treatment that included a SEL program with a mindfulness component. The study included 99 students composed of 56 males and 43 females. Students in the study were divided into a treatment group and a control group. Students in the control group received the SEL program that included the mindfulness component, while student in the control group only received the SEL program (no mindfulness component). The study used gender, grade level, cortisol level, and the Mindfulness Attention Awareness Scale (MAAS) as predicting variables. The findings indicated a positive relationship existed between the executive control process of inhibition and the self-reported dispositional mindfulness when controlling for grade level, gender, and
cortisol levels. This study demonstrates that teaching SEL behaviors were enhanced by the inclusion of a mindfulness component.

Studies have also been conducted to test how mindfulness could impact a students’ ability to reduce stress. This is based on the understanding that mindfulness practices have been found to decrease sympathetic hyperarousal\(^8\), allowing the practitioner to connect with the parasympathetic nervous system\(^9\) (Britton and Sydnor as cited in Willard & Saltzman, 2015). Elder, Nidich, Colbert, Hagelin, Grayshield, Oviedo-Lim, Nidich, Rainforth, Jones, and Gerace (2011) conducted a four-month study, which examined the effect of transcendental meditation as a means of reducing psychological distress. The study included 106 racial and ethnic minority students in Connecticut, South Dakota, and Arizona secondary schools. The meditative practice was implemented twice a day during the school week for 10 to 15 minutes during the course of the study. The study focused on three different measures: psychological distress, anxiety or stress levels, and depressive symptoms, along with overall mental health. The findings suggested transcendental meditation was effective in reducing psychological distress in the intervention group as compared to the control group.

Costello and Lawler (2014) conducted a five-week study that examined the use of Mindfulness Meditation Intervention as a means to reduce stress in 11- and 12-year-olds who came from lower socioeconomic backgrounds. The study was based on two mindfulness programs that were created for children. The first program was The

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\(^8\) Sympathetic hyperarousal is when the autonomic nervous system that initiates feelings of fight, flight, or freeze have been activated within the body. This is observed through increased heart rate, raised blood pressure, and raised glucose levels (Flynn, 2016\(a\)).

\(^9\) The parasympathetic nervous system is part of autonomic nervous system that is responsible for rest and digestion. This is observed through decreased heart rate, an increase in intestinal and glandular active, and relaxation within the muscles (Flynn, 2016\(a\)).
Mindfulness-based Cognitive Therapy for Children and the second program was The Mindfulness-based Stress Reduction course for Children (p.26). The study followed a progression where each week the intervention time would systematically increase, moving from three minutes the first week to 12 minutes by the final week. Qualitative data were collected through student interviews. The results indicated five overarching themes illustrating the students’ perception of mindfulness: “conceptuali[z]ation of stress, awareness, self-regulation, classroom relations, and addressing future stress” (p. 27). Using “a paired-samples t-test” the study determined that although many students continued to be categorized within the high-stress category, their perception of stress had reduced, suggesting the intervention had a positive effect on students’ perception of their own stress. This study indicates how students’ perceptions can be used as a measure for response to a mindfulness intervention.

Through direct instruction of mindfulness practice as a regulating behavior, children learn to autonomously handle obstacles that “they inevitably encounter along the road of life” (Bertin, as sited in Willard & Saltzman, 2015, p. 382). Through mindful practice, students are able to shift from heightened arousal in the sympathetic nervous system to more autonomic responses through connecting with the parasympathetic nervous system. Students are able to learn how to “pause and check in” with themselves, building a level of self-awareness and ability to monitor their performed behaviors (p. 396). These findings support the inclusion of a mindfulness program in settings where young children struggle with employing self-monitoring and regulating behaviors.

The effects of mindfulness on self-regulatory skills. Self-regulatory skills refer to the ability to control one’s attention, behavior, and emotional responses (Eisenberg,
Students who are able to self-regulate are able to productively work with purpose and have better interrelationship skills (Lillard, 2007). Self-regulatory skills “involve modulating feelings, thoughts, and behavior” over time to improve one’s impulsivity (Flook et al., 2015, p. 44).

Mindfulness also allows for the regulation of attention and a deeper awareness of the present moment (Willard & Saltzman, 2015). The following section illustrates the findings from research studies that have examined this correlating phenomenon. Mendelson, Greenberg, Dariotis, Gould, Rhoades, and Leaf (2010) conducted a 12-week pilot study on the impact of mindfulness teaching in four public urban schools serving underprivileged students deemed at-risk. Their study results indicated there was no detected difference for emotional response or depression. Results from an Involuntary Engagement Coping Scale of the Response to Stress Questionnaire further showed the participants from the intervention group reported significant improvements in their involuntary response to stress. The study indicated mindfulness approaches, including breathing and yoga instruction, resulted in reduced stress levels of students while increasing students’ ability to solve conflicts in a positive manner.

Burke and Hawkins (2012) suggest that mindfulness can have positive effects on students’ abilities to pay attention, to make responsible-decisions, to develop character, and to develop critical thinking skills. Based on the consolidated findings of Leland (2015), mindfulness programs can improve self-regulation, practitioner skill development, and aggression. They additionally found mindfulness to have a positive impact of the academic performance of students with learning disabilities, and the sports
performance of student athletes. Costello and Lawler (2014) make the claim that mindfulness as a practice reduces stress by developing flexibility of mind. Conducting a 5-week study on 63 primary aged students, they found that mindfulness was effective helping students build self-regulating behaviors when stressed. The resulted in overall stress reduction in students.

The development of these self-regulatory skills begins to mature during the lower elementary years. Moffitt, Arseneault, Belsky, Dickson, Hancox, Harrington, Houts, Poulton, Roberts, Ross, Sears, Thomson, and Caspi (2011) found positive correlation between the level of self-regulatory behavior developed at an early age and success in school and in later life. These findings were based on a 30-year longitudinal study that included over 1,000 children-participants. Another longitudinal study conducted by Eisenberg, Fabes, Murphy, Maszk, Smith, and Karbon (1995) focused on 6- to 8-year-olds. The report determined there was a relationship between a child’s emotionality, self-regulation, and their social functioning. These skills were developed in individual children as their social behaviors changed over time. In correlation to the present study, mindfulness practice has been shown to have positive effects on the development of self-regulation. Studies indicate that the inclusion of a mindfulness intervention can have positive effects on young children’s ability to self-regulate behaviors. In consideration of these research findings, it can be determined that the instruction of mindfulness practice strategies should be provided to students who need to develop self-regulatory skills and behaviors.

**Mindfulness and autonomous learning.** Social and Emotional Learning behaviors require a student to demonstrate metacognitive abilities; this autonomous
behavior will be exhibited through five competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. The Collaborative for Social and Emotional Learning (CSEL) have asserted that by acquiring these competencies children and adults are more adept to effectively apply knowledge and understandings, understand and manage their emotions, establish and achieve personal goals, behave with empathy, and make responsible decisions (2017).

Figure 2.1 CASEL Social and Emotional Learning Chart

According to Flynn (201a), mindfulness practice encourages and increases the above autonomous SEL behaviors by facilitating students:

- Noticing what one is thinking and feeling without judgement; having “mindful bodies”- by enhancing body awareness & safety; encouraging breath awareness; providing cues for students to check in and access how
one is thinking and feeling; and allowing students to integrate the yoga and mindfulness skills taught for increased self-regulation (p. 18).

Mindfulness instruction assists students in becoming disciplined, mentally present, and attentive (Williams & Penman, 2011). In support of this claim it has been shown that mindfulness practice has the potential to impact students’ development of their metacognitive skills or “conscious examination of one’s thinking” and as such have the potential to positively impact autonomous learning behaviors (Buoncristiani & Buoncristiani, 2012, p. 25). This claim is based on the premise that mindfulness has the potential to improve the EF skills of equilibrium, elasticity, adaptability, and obedience of present thought (Burke & Hawkins, 2012). It is understood that the brain is malleable; thus, given the right conditions, strengthened memory connections can be cultured, allowing for developed understanding of concepts and self-control of behavior (Jenson, 2005). When specific instruction is included in SEL instruction, students are able to improve their EF and self-regulation (Oberle, Schonert-Reichl, Lawlor, and Thomson, 2012) As such, mindful behaviors should encourage the following autonomous SEL behaviors: self-awareness, self-management, social-awareness, responsible decision-making, and relationship skills.

**Conclusion**

The review of literature framed the action research studies in historical context of the Montessori Model (a progressive learner-centered pedagogy), mindful meditation in the Western world, cognitive theory, self-regulatory skills, EF skills, and autonomous SEL behaviors discourse. In a final analysis of the literature reviewed, it can be concluded that mindfulness practice has impacted Western medicine, psychology, and
education. Mindfulness practice has been shown to have a positive impact on mental health, physical illness, EF, autonomous SEL competencies, and academic achievement.

The Montessori Method, as a progressive learner-centered school of thought, works towards developing students' EF and autonomous SEL learning. In this setting, students' autonomy of learning is demonstrated through their ability to self-regulate behaviors. The literature reviewed underscores the potential benefits and importance of using a mindfulness practice in the LEM classroom where students are observed to struggle with demonstrating autonomy of learning.

The review of literature shows that mindfulness has the potential to produce trait changes in students, as demonstrated through the study results that showed students' ability to increase cognitive functioning, EF, and ability to self-regulate behaviors. The action research study was developed around the potential of inducing the trait changes that occurred in these studies as a result of the inclusion of a mindfulness intervention. According to Cahn and Polich (2006), trait changes from extended meditative practice include self-regulation, heightened cognition, and heightened self-awareness. It has been deduced that through mindful meditative practice students will become more connected to the present moment, and as a result they will be able to better control or self-regulate non-mindful behavior. The research in this section explored how mindfulness practice models have been used in educational settings and the effects the inclusion of mindfulness meditative strategies have had on cognition, EF skills, and self-regulation. Based on the review of literature, the literature supports the inclusion of using mindfulness practice in a LEM setting as a means for providing a strategy for building autonomous SEL behaviors through the use of self-regulating strategies.
CHAPTER THREE
METHODOLOGY INTRODUCTION

Chapter Three of this DiP provides a detailed description of the methodology used in the presented action research study. This chapter includes a discussion on background context for the study, a description for the current action research design, and an explanation for the role the teacher-researcher played within the support model approach to action research. After the discussion, the following action research design specifications are presented: action research site, participants, ethical considerations, and data collection methods utilized. Concluding thoughts are shared in a discussion on the role reflection played in analyzing data and developing an action plan.

Background/Context

The action research design is a conceptual framework implemented in a particular setting to guide the researcher (Mertler, 2014). When developing a research design, the researcher must develop a blueprint for how the study will look and be carried out in a particular setting. Special consideration for this study was given to the needs of third-grade students in a multi-aged LEM classroom that showed a need for improved independent learning processes.
Action Research Design

The current research design was developed around the PoP identified for the current DiP. The research trajectory followed the framework outlined by Mertler (2014) as shown in the table below (See table 3.1). For the action research study the teacher-researcher worked closely with a group of third-grade students from a multi-aged LEM classroom.

Figure 3.1 Research Trajectory

Based on Montessori philosophy, teachers nurture and care for the whole child physically, mentally, emotionally, and spiritually (Montessori, 1995b; Lillard, 2007). Playing games such as the Silence Game, or focusing one’s breathing, serves a purpose in the LEM classroom. Montessori believed when students practice these skills they
increase their sensory discrimination abilities, they develop a sense of order (EF skills), and they develop refined self-regulatory skills (Lillard, 2007).

In consideration of the PoP and the setting for which the study would take place, the Montessori philosophy became the foundation for the presented DiP. During the intervention phase of the action research study, mindfulness practice was implemented during the classes’ scheduled community meeting time. For this action research study, the teacher-researcher modified this time to include mindfulness meditative activities three times a week (Monday, Wednesday, and Friday) for a duration of five-weeks. The intervention was designed based on Flynn’s (2016b & 2017) Childlight Yoga® model. The mindfulness practice consisted of a mindful activity, a yoga sequence, a group game/activity, and breath work on Monday and Fridays. On Wednesdays the session was shorter, only a yoga sequence and breath work were introduced and practiced (see Appendix A).

Dana and Yendol-Hoppey (2014) identified four models for collaborating when conducting action research. In the action research study, the teacher-researcher followed the inquiry support model. Using the support model, she worked with a teacher-participant and an instructional assistant to plan the intervention, carry-out the intervention, and analyze data collected during the intervention. This process is outlined below.

The inquiry support model was chosen because the model best supported the present role of the teacher-researcher and the teacher-participant. The study was based on the teacher-researcher assisting a teacher-participant who had a concern for her third-grade students who demonstrated difficulty with employing autonomous learning
behaviors. Since the model for research uses the support model, the teacher-researcher was responsible for carrying out the action research study. Data were shared with the teacher-participant and instructional assistant weekly during the intervention. At the end of the study, the teacher-researcher provided a formal presentation of findings to the teacher-participant and instructional assistant. Sharing data findings on an on-going basis helped the teacher-researcher and the teacher-participant in answering a wondering (inquiry) they had about the student-participants’ perceived learning behaviors.

Mertler (2014) states that “action research needs to decide who can provide the data that are needed” and that “any of the methodologies…whether quantitative, qualitative, or mixed methods in nature—can be used” (p. 41). Based on a similar study conducted by Flook et al. (2010), it was determined that data should be collected both quantitatively and qualitatively. The quantitative data was collected through student reporting on SEL competencies, along with teacher-participant and instructional assistant reporting on student on-task behaviors and use of mindfulness practice. Qualitative data was collected through observational field notes and semi-structured interviews. The study was based on determining the impact of mindfulness practice on learning behavior that was subjective in nature, and as a result was best observed and analyzed using a mixed-methodology design. To ensure validity in the results, observations were made during the same time of day on the same three days of each week for the full duration of the study.

**Role of the Teacher-Researcher**

According to Mertler (2014), the teacher-researcher in an action research study can be anyone who has a vested interest in the educational outcomes of a particular population. In the case of the action research study, the school’s CRT served as the
teacher-researcher for this action research study. As such, the teacher-researcher’s role in
the action research process as she was solely responsible for orchestrating the study
around the developed research question. By planning with the teacher-participant and
reflecting on interactions with and observations of the students, the teacher-researcher
was able to develop a study methodology that met the needs of the identified PoP.
Following Mertler’s (2014) outline for action research the teacher-researcher developed
the following action research design and methodology.

**Research Site**

The site where the study was conducted served an urban population which
included zoned students in a traditional program, as well as zoned and nonzoned students
in a Montessori magnet program. (Zoned students are students who live within the school
boundary set by the local school district.) Based on the school’s poverty index of 67.28%,
this particular school was labeled a Title One School by the school district. Being a Title
One School means the school served a high population of students living at or below the
rate of poverty, and that 100% of the student population received free or reduced lunch.

At the time of the study, the school impacted by the study served 272 students
from 3-year-olds through fifth grade. These students were participants in one of the three
academic choices provided by the school: 9 traditional classes (146 students), 5
Montessori classes (109 students), and 2 Special Education classes (17 students). The
school’s population consisted of 76.4% African-American, 17.6% White, 4%
Hispanic/Latino, < 1% Asian, and 1.5% two or more races. In addition, the gender
population was evenly divided, 50% male and 50% female.

The action research study took place in a LEM classroom (teaching 6- to 9-year-
olds) in an urban, southeastern U.S. elementary school. The Montessori classroom identified in the study was housed within a traditional elementary school setting. As part of the public-school system, the classroom curriculum adhered to Montessori philosophy, federal mandates, and state mandates. The demographics of this classroom differed from the whole school setting in that the population was comprised of 52% White, 38% Black, 5% Hispanic, 5% two or more races, and 0% other. In addition, 57% of the population was male while 43% female. The class also included 2 students (1 of whom is indicated in the presented research study) who received an Individualized Educational Plan (IEP) for speech purposes only.

**Participants**

The participants of this study included 5 third-grade students from a LEM classroom. Information was gathered for these students through an informal interview with the teacher-participant and instructional assistant.

The five student-participants are described using pseudonyms as follows:

- **Caden**: a 9-year-old White male. He had an IEP which denoted he receive 30 minutes of speech per week. He appeared to be a hardworking student, had a good sense of humor, and for the most part seemed easily motivated to work when not sitting with distracted or distracting peers.

- **Danielle**: a 9-year-old Black female. While she appeared confident in her abilities, she notably enjoyed socializing with her peers and could easily be distracted by them. Her peers seemed to look up to her, as they were often observed asking her questions about or for support with their own work.
• **Joshua**: a 9-year-old White male. He appeared to be reserved and easygoing, was often observed sitting away from other students, and often appeared to be silently off-task.

• **Samantha**: a 9-year-old Black female. She appeared reserved yet easily distracted and seemed to struggle with choosing work and staying on-task. She was often observed standing in the classroom watching her peers or avoiding work by taking long periods of time to eat snack or helping younger peers. Most of the observations on Samantha detailed a picture of a student who was passively off-task.

• **Tristan**: a 10-year-old Black male. He appeared to be highly energetic, impulsive, and easily distracted. He seemed to have a high desire for socializing with peers and was often observed talking and interacting with them during the three-hour work cycle.

**Ethical Considerations**

“Teacher-inquirers focus on providing insights into teaching in an effort to make change, working tirelessly to unpack all of the complexities inherent in the act of teaching” to become the very best teachers they can be for every individual student (Dana & Yendol-Hoppey, 2014, p. 9). Through the participation in this doctoral program, the teacher-researcher met her ethical obligations as a teacher leader to improve her professional practice while contributing to school improvement.

The purpose of this action research study was to improve the independent learning processes of the students in the study. Teacher-researcher contributed to the participating elementary school’s body of knowledge as it pertained to incorporating alternative
instructional methods that enhance the education of students, with a secondary goal of increasing students’ self-regulatory skills and autonomous SEL behaviors. The choice to use mindfulness instruction as a means to increase students’ self-regulatory skills and autonomous SEL behaviors met both the teacher-researcher’s and teacher-participant’s beliefs as Montessori advocates.

Montessori philosophy is based on developing the whole child—this begins by nurturing the child as an individual and helping him/her to develop autonomy through self-regulatory skills (Lillard, 2007). Therefore, in conducting this action research study, the teacher-researcher implemented an intervention practice that was proposed to meet the needs of the students in the LEM setting by acquiring a deeper understanding of students’ perceived learning behaviors. Understanding was then used to guide instructional planning in the classroom for individual students in an ethical manner.

Participation in this study was completely voluntary (Mertler, 2014). Since all of the students who participated in the study were under the age of 18, the researcher provided all parents and guardians with a letter of consent, which included an accurate disclosure of the study (see Appendix I). The teacher-researcher also obtained assent from the students themselves (see Appendix J). Once consent and assent forms were returned, data for the action research study was only collected on those students with whom both the parental consent and student assent form were received. Additionally, during the study the teacher-researcher collected and analyzed data with the teacher-participant and instructional assistant. Since the teacher-participant and instructional assistant were participants in the study, the teacher-researcher provided them with accurate disclosure and assent forms which had to be returned to allow for their
participation in the study (see Appendices K and L). Moreover, to protect the confidentiality of all participants, the teacher-researcher followed Family Educational Rights and Privacy Act (FERPA) laws. This was accomplished by using pseudonyms for all participant data (Likert scales, journals, and field notes) collected.

The teacher-researcher had two goals: (1) to provide a natural and high-quality learning environment for all students, and (2) to enhance her professional practice contributing to the uses for mindfulness practice in her school (Dana & Yendol-Hoppey, 2014). To maintain a natural learning environment centered on high quality teaching, the teacher-researcher continually took into consideration the varying ages and needs of the students. In doing so, she ensured that she was “keeping caring, fairness, openness, and truth at the forefront of” her work as a teacher-researcher (Dana & Yendol-Hoppey, 2014, p. 150).

**Action Research Methods**

Following Dana and Yendol-Hoppey’s (2014) action research design, the mindfulness practice (designed after the *Childlight Yoga®* model) was incorporated into the action research study. During the implementation of the mindfulness practice, the intervention was taught by the teacher-researcher with the assistance of the teacher-participant and instructional assistant.

The primary purpose of the action research study was to test the effect of implementing mindfulness practice in classroom routine on LEM third-grade students’ learning process. For this study, mindfulness practices consisted of imagery activities, yoga exercises, games/activities that require students to focus on the present moment, and breath work. These practices were implemented to teach self-regulatory strategies to
students that could be used when they perceived themselves to be off-task during the
three-hour work cycle. Since autonomy is personal to each individual student, it was the
students’ perception of autonomous growth that was important to the teacher-researcher.
Thus, SEL behavior was identified by students through the use of a pre- and post-Likert
scale measuring self-awareness, self-management, social awareness, relationship skills,
and responsible decision-making.

The secondary purpose of the present action research study was to determine to
what extent students used mindfulness practice strategies independently of the teacher-
researcher, the teacher-participant, or the instructional assistant. This study sought to
discover if students were aware of becoming aware and what students’ perceived level of
autonomy was throughout the experience. In other words, were students engaging in the
metacognitive practice “of deliberately paying attention to the activity of paying
attention” (Kabat-Zinn, 2003, p. 254)?

**Data Collection**

The teacher-researcher determined that the study should utilize both quantitative
descriptive statistics and qualitative inductive analysis to measure the impact mindfulness
practice had on students’ independent learning process. Quantitative data were collected
pre- and post- intervention based on three measures, (1) teacher-participant’s and
instructional assistant’s perceptions of students’ on-task behaviors, (2) teacher-
participant’s and instructional assistant’s perceptions of students’ use of mindfulness
practices, and (3) students’ perceptional Likert scale survey. Qualitative data were also
collected during the study through the collection of student journal responses, semi-
structured interviews, and observational field notes collected by the teacher-researcher.
Likert Scale

A pre- and post-Likert scale was administered to the third-grade LEM student-participants to collect quantitative data on the students’ perception of their independent learning process (see Appendix F). Using a Likert scale as a questionnaire allowed the teacher-researcher to monitor progress and changes in students’ attitudes towards their autonomous SEL behaviors and mindfulness practice during the course of the study. The Likert scale questionnaire included the following 9 domains: Focused Attention, Resilience, Self-Compassion, Empathy, Open-Mindedness, Emotional Self-Regulation, Metacognition, and Cognitive Flexibility. For the Likert scale, participants circled the emoji (making the Likert more child friendly) that most described how they felt about each question from “most like me” to “not like me at all” for various autonomous SEL behaviors in conjunction with the mindfulness practices.

In addition to the student-participant Likert scale, two pre- and post-Likert scales were used to collect quantitative data on the teacher-participant’s and the instructional assistant’s perception of students’ learning behaviors. The first pre- and post-Likert scale specifically focused on the teacher-participants’ and the instructional assistant’s perception of students’ on-task learning behaviors (see Appendices B and C). A secondary pre- and post-Likert scale collected data on their perception of students’ use of mindfulness practice (see Appendices D and E). These two Likert scales permitted the teacher-researcher to develop a baseline for where students were performing at the beginning of the intervention as observed by the teacher-participant and the instructional assistant in comparison to where students were performing by the end of the study. The additional Likert scales added to the breadth of data collected and provided a comparison
measure for student-participant Likert scales.

Descriptive statistics were utilized to describe data collected from the Likert scales. The study monitored one intervention group of 5 third-grade students. This group of students was not compared to a neutral control group. Furthermore, the intent of the study was designed to determine if mindfulness practices had an impact on students’ independent learning process in a specific and isolated classroom environment. Thus, this study was based on a small population of students for which inferences could not be used to generalize towards larger populations of students, as is the purpose of inferential statistics.

**Observational Field Notes**

Since observable behaviors are qualitative in nature it was determined that field notes should be used to collect observational data. Observations were conducted 3 days a week on Mondays, Wednesdays, and Fridays from 9 a.m. to 9:30 a.m. for the full duration of the intervention. Observations were taken in 5-minute increments of time during the 30-minute observation time. Each 5-minute increment focused on observing each of the 5 participants on-task and off-task behaviors. Observed on-task behaviors were coded as independent, with peer, or with teacher/instructional assistant. Off-task behaviors were coded as actively off-task or passively-off-task. Additional observations were recorded for each student to help build a narrative for what was observed in the natural environment.

Field notes allowed the teacher-researcher to capture the action of what was occurring in the research setting in a nonbiased way (Dana & Yendol-Hoppey, 2014). In this way, the teacher-researcher was able to use her field notes to collect data on students’
authentic daily independent learning behaviors. By collecting notes while presently in the field (research setting), the teacher-researcher was able to collect data on what was occurring during the three-hour work cycle over the course of the five-week intervention.

Reflection allowed the teacher-researcher and teacher-participant to look for any trends observed to gauge students’ perceived level of independence and autonomous use of mindfulness practice. These observations supported the ongoing weekly planning process. This allowed for adjustments to be made if necessary throughout the implementation of the intervention. Since the LEM contained three grade levels of students, each working at their own pace, it was determined that using field notes would best fit the needs of this research study as the focus was on a specific small sect of the entire classroom population.

**Semi-structured Interviews**

According to Mertler (2014), semi-structured interviews are developed around a set of “base” questions that provide the researcher an opportunity to ask optional follow-up questions (see Appendix G). In order to obtain student-participants’ initial perceptions of the intervention, their understanding of mindfulness practice, and their ability to self-reflect on autonomous learning behaviors the participant-researcher conducted semi-structured interviews after each intervention session. At the end of each session, the teacher-researcher asked the student-participants questions to gain deeper insight on their perceptions and beliefs about their (a) general mindfulness practice, (b) use of mindfulness practice strategies, and (c) individual practice attitudes. Each interview session ended with the collection of data on the student-participants’ feeling about the session with a thumb signal (an upwards thumb indicated they enjoyed the session, a
sideways thumb indicated they were neutral/no positive or negative feelings towards the session and a downward thumb indicated they did not enjoy the session) along with any follow-up questions inspired by student responses in the moment. The interviews were used understand the individual thoughts and perspective of student-participants in relation to their learning process and response to the mindfulness intervention.

**Student-participant Journals**

Throughout the intervention phase students completed journal responses three days a week on Mondays, Wednesdays, and Fridays. In the journals students responded to a predetermined daily prompt provided to them by the teacher-researcher (see Appendix H). Each daily prompt was the same, containing three sentence starters: “During worktime I found it easy to focus and stay on-task. It was easy because...”, “During worktime I found it difficult to focus and stay on-task. It was difficult because...”, and “If you used a mindful strategy, which one did you use and how? Explain below.” The daily prompt allowed the teacher-researcher to gather insight on “naturally occurring forms of data” (Dana & Yendol-Hoppey, 2014, p. 101). These prompts were considered naturally occurring because journaling and responding to journal prompts were already a daily classroom expectation of students in this class.

The data collected from the student-participants’ journals were analyzed by the teacher-researcher and teacher-participant on a weekly basis. Reflecting on journals weekly allowed them to see if students perceived it as easy or difficult to stay-on task that week and if any mindfulness strategies were employed. At the end of the study they systematically organized the data, allowing them to look for any emerging trends within the journal entries, gauge students’ reactions to mindfulness practice, and gain a deeper
understanding for students’ perception of their independent learning process. They compared the systematically organized and coded data with other data sets collected to make determinations about the study findings.

**Reflection**

Reflection is at the heart of any action research design (Mertler 2014; Carver & Klein, 2013). According to Dana and Yendol-Hoppey (2014), action research is a practice rooted in inquiry. When a researcher embarks on a journey through action research, they are on an inquiry based reflective path to discovery. Dana and Yendol-Hoppey (2014) also asserts that reflection is a natural process all teachers engage in constantly. The reflective process is an active one including “thoughtful consideration of educational theory, existing research, and practical experience” (Mertler, 2014, p. 13). Reflection during the action research process is critical to growth and heightened awareness for the needs of the students being served in the classroom.

Mertler (2014) designed an action research model that follows a four-phase cycle: planning, acting, developing, and reflecting. Each phase dictates a different part of the action research inquiry model. During the developing phase, the researcher undergoes a reflective process reflecting on the culminating experience from the planning and acting phase. Thus, reflection is based on the practical experiences of the researcher, the review of literature conducted, and the analyzed data results.

The teacher-researcher constantly underwent a process of reflection. This reflective process led the teacher-researcher in assisting the teacher-participant frame her inquiry, design an action research design, and determine an appropriate methodology. Following the model for action research developed by Dana and Yendol-Hoppey (2014),
the teacher-researcher continued to reflect throughout the action research intervention phase and analysis phase. The process as a whole allowed for the teacher-researcher to assist the teacher-participant in improving instructional planning for her students’ autonomous learning as the school year progressed.

**Reflection and Data Analysis**

Upon completion of the data collection phase, data were analyzed for emerging trends and themes that presented themselves as a result of the inclusion of mindfulness practice as a self-regulating behavior in a LEM classroom. A statistical analysis was conducted on the quantitative data collected from the Likert Scales using the spreadsheet program Excel. From this analysis, bar graphs were created. All qualitative data were coded and tabulated. Percentage charts were created to show the percentage of time student-participants identified finding it easy to stay on-task in comparison to finding it difficult to stay on-task, and to show the percentage of time student-participants identified using mindfulness practice strategies to self-regulate off-task behaviors. In addition, student-participants’ attitudes were recorded with a conflated description of results from the semi-structured interviews, Likert scale surveys, student journals, and observational field notes. The process of analysis provided a foundation of information that aided the teacher-researcher in developing an action plan.

**Reflection and Developing an Action Plan**

Throughout the developing phase, professional reflection was an essential component of the action research process. The developing phase was essential to the presented action research study in that it allowed the teacher-researcher to think about where the process led her and what was learned along the way (Mertler, 2014). Reflecting
in this way allowed for the teacher-researcher to confirm if and to what extent her methodology and findings aligned with the driving questions behind the investigation. The use of reflection was important; engaging in reflection gave validity to the results confirming for the teacher-researcher that the techniques used provided her “with the appropriate information in order to answer…the research question” (Mertler, 2014, p. 162).

When reflecting, the teacher-researcher translated the implications of the findings as she moved forward developing a plan of action (Mertler, 2014). This engagement of reflective practice, as part of her action research plan, led to the development of a new perspective based on academic literature and relevant practice (Carver & Klein, 2013). In turn, the teacher-researcher synthesized information, making determinations about the implications resulting in a developed plan of action. This process was time-consuming, as synthesizing data required the teacher-researcher to reflect on the whole experience answering many questions about the study. But, when developing an action plan, the teacher-researcher had accepted that she would “be doing something different in the future” (Mertler, 2014, p. 211) and that this action research study was just one-stepping stone of many along the overall action research journey. When following the inquiry model, each inquiry was followed by reflection which in turn lead to a new inquiry. This constant change developed and grew the professional values for those involved (Mertler, 2014; Dana & Yendal-Hoppey, 2014).

**Conclusion**

With Montessori philosophy and expectations in mind, students are expected to build independence in their learning process as they progress through the Montessori
program. As such, it is imperative that students’ EF functioning and autonomous SEL behaviors are not left behind. The purpose of the action research study was to answer the guiding research question: *What impact would mindfulness practices have on the independent learning process of third-grade students in a Montessori setting?* To answer the pending research question, Mertler’s (2014) cycling action research design was implemented: planning, acting, developing, and reflecting. During the first phase inductive reasoning was used as the teacher-researcher conducted observations of her students, looked for patterns and created a tentative hypothesis which led to a plan for action. During the second phase, the researcher acted by implementing a qualitative inductive methodology used to collect and analyze data on the student-participants. The findings from phase two led to the development of a plan for action during phase three. Finally, the process ultimately led to teacher-researcher reflection, which included sharing the results of the study and an overall examination of the whole action research process.
CHAPTER FOUR

FINDINGS FROM THE DATA ANALYSIS INTRODUCTION

Chapter Four will provide a review of the PoP and methodology used in the action research study. This review will be followed by a discussion on the study findings, interpretation of the data and interpretations of the study results.

Statement of the Problem of Practice

The identified PoP for the study centered on observations made by the teacher-participant. She observed that her third-grade LEM students struggled to incorporate autonomy of learning during the three-hour work cycle. Using action research methods, the teacher-researcher explored what impact mindfulness practice had on the perceived learning process of five students in a LEM class. In the case of this study, students’ perceived learning was measured through three distinct parameters: (1) self-reports of perceived learning on-task and off-task behaviors, (2) students’ ability to effectively use mindfulness practices autonomously as a self-regulating behavior when off-task, and (3) teacher-researcher’s observations, along with teacher-participant’s and instructional assistant’s reporting, of improved autonomous learning behaviors and students’ autonomous use of mindfulness practices as a self-regulating behavior. By investigating the PoP in the LEM classroom through action research, the teacher-researcher was able to provide assistance to the teacher-participant planning for instruction that supported autonomous learning. She was also able to add to the body of knowledge the school had
on the potential benefits and instructional uses for mindfulness.

**Research Question**

What impact would mindfulness practices have on the independent learning process of third-grade students in a Montessori setting?

**Purpose**

The purpose of this study was to examine the impact of mindfulness practices on the independent learning process of third-grade students in the LEM setting.

**Methodology**

During the five-week period of data collection: March 26, 2018, through May 4, 2018, the teacher-researcher collected data using a variety of methods. Two forms of data were collected by the teacher researcher: (1) semi-structured interview which immediately followed each intervention session and (2) teacher-researcher observational field notes that were collected three times a week during the middle of the three-hour work cycle from 9:30-10:00 a.m. each Monday, Wednesday, and Friday.

In addition to the data collected by the teacher-researcher, student-participants completed pre- and post- Likert scale that inquired about students’ self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. These data were collected through a Likert scale questionnaire which included the following 9 domains: *Focused Attention, Resilience, Self-Compassion, Empathy, Open-Mindedness, Emotional Self-Regulation, Metacognition*, and *Cognitive Flexibility*. Students also recorded journal reflections three times per week at the end of the three-hour work cycle each Monday, Wednesday, and Friday.
Further data were collected using two pre- and post-Likert scale surveys that were completed by the teacher-participant and the instructional assistant. The first survey collected data on the teacher-participant’s and the instructional assistant’s perception on students’ on-task work behaviors, while the second survey collected data on their perception of students’ autonomous use of mindfulness practices as a self-regulatory behavior. Subsequently, the teacher-researcher was able to compare these data to observations and field notes in order to determine if students perceived autonomous learning behaviors were impacted and if students’ independent use of mindfulness practice increased.

**Findings of the Study**

The findings reported in this study came from an examination of five different instruments that were utilized by the teacher-researcher, teacher-participant, instructional assistant, and the student-participants. First the prominent subthemes that emerged from each individual data collection instrument are presented. These individual data sources are discussed through a presentation of relevant commentary derived from the teacher-researcher’s collected field notes. Through the conflation of these data sets, overarching patterns emerged as a result of the mindfulness intervention.

The teacher-researcher examined each instrument implemented during the intervention for third grade student-participants’ self-reports of perceived learning. Restated, for this action research study perceived learning was measured using three parameters: (1) self-reports of perceived learning on-task and off-task behaviors, (2) students’ ability to effectively use mindfulness strategies autonomously as a self-regulating behavior when off-task, and (3) teacher-researcher’s observations, along with
teacher-participant’s and instructional assistant’s reporting, of improved autonomous learning behaviors and students’ autonomous use of mindfulness strategies as a self-regulating behavior. Through examination of each data source, the teacher-researcher was able to infer how student-participants perceive their learning. Additionally, she was able to identify trends within student-participants’ responses, teacher-participant’s and instructional assistant’s reporting, and her observational field notes. Subsequently, the teacher-researcher was able to determine if students’ autonomous SEL behaviors were impacted and if there was a perceived increase in students-participants use of mindfulness strategies as a self-regulating behavior as a result of the intervention.

**Overall Results of Teacher-participant and Instruction Assistant Likert Scales**

A pre- and post-Likert scale was used to collect data on the teacher-participant’s and the instructional assistant’s perception of students on-task learning behaviors prior to and after the intervention. These data were then further used to compare with students’ perception of their learning behaviors. Based on the Likert scales provided to the teacher-participant and the instructional assistant it was noted that by the end of the intervention, students exhibited a notable increase in on-task learning behaviors (see Figures 4.1 and 4.2).

Further examination of the data showed that the teacher observed positive noticeable changes in the on-task learning behaviors of 4 out of 5 of the student-participants (see Figure 4.1). The instructional assistant noticed positive on-task learning behaviors in 3 out of 5 of the student participants (see Figure 4.2). When comparing the data from the teacher’s and the instruction assistant’s Likert scales the data relays that the teacher and the instructional assistant saw similar positive increases in on-task behaviors.
in 2 of the student-participants: Danielle and Joshua (see Figure 4.1 and 4.2). (The scale ratings for Figure 4.1 are as follows: 1 = off-task all of work time, 2 = off-task more than half of work time, 3 = somewhat off-task. Off-task half of work time, 4 = on-task more than half of the work cycle, and 5 = on-task the full work cycle.)

![Teacher-Participant's Reporting on Students' On-task Behavior](image)

Figure 4.1 Teacher-Participant’s Pre- and Post-Reporting on Students’ On-task Behavior

![Instructional Assistant’s Reporting on Students' On-task Behaviors](image)

Figure 4.2 Instructional Assistant’s Pre- and Post-Reporting on Students’ On-task Behavior

An additional pre- and post-Likert scale was provided to the teacher-participant and instructional assistant to examine if any changes occurred in student-participants’ autonomous, or independently employed, use of mindfulness strategies as a result of the
intervention. The findings suggested that student-participants were influenced by the intervention. Both the teacher-participant and the instructional assistant indicated observing changes in 3 out of 5 of the student participants: Danielle, Joshua, and Samantha (see Figures 4.3 and 4.4). (The scale ratings for Figure 4.1 are as follows: $1 = \text{never uses mindfulness practices autonomously}$, $3 = \text{sometimes uses mindfulness practices autonomously}$, and $5 = \text{always uses mindfulness practices autonomously}$.)

Through closer analysis of the data, it became apparent that the intervention had a positive impact on both Danielle’s and Joshua’s use of mindfulness practices. However, while both the teacher-participant and the instructional assistant did observe a change in Samantha’s use of mindfulness practices, their interpretation of this change did not correspond with one another. While the teacher-participant’s responses indicated a negative shift in Samantha’s use of mindfulness practices, the instructional assistant’s responses indicated a positive shift. The instructional assistant’s reporting (see Figure 4.4) aligned more directly with Samantha’s self-reporting (see Figure 4.6). While Samantha’s post-Likert scale reporting on SEL behaviors indicated an increase in mindfulness practices, this did not seem to reflect her overall attitude towards the practice as indicated in Figure 4.7. In the post-Likert scale Samantha indicated feeling neutral toward the intervention and that she did not plan to continue practicing mindfulness post intervention. The teacher-participant additionally, observed a positive shift in Caden’s use of mindfulness strategies during the duration of the intervention. Neither the teacher, nor the instructional assistant noticed any change in Tristan’s use of mindfulness practices as a result of the intervention.
Overall Results of Student-Participant Likert Scales

Results of the Likert Scale that examined student-participants’ SEL behaviors indicated a positive increased shift in student-participants’ overall perceived learning. In comparison from the first administration to the second administration, there was an increase in 6 of the 9 domains. Comparing the different data sets from the 9 domains for SEL competencies, it is observed that ability to focus, confronting classroom challenges,
and transitioning from one lesson to the next increased by 20%, compassion towards classmates and awareness of environment increased by 40%, and student-participants’ autonomous use of mindfulness strategies increased by 60% (see Figure 4.5). The SEL domains of empathy, impulse control, and mind wandering showed no change from the first to second administration. While 6 of the domains had a positive increased shift, the overall results cannot be concluded as significant due to the small sample size of the study.

Figure 4.5 Overall Results of Student-Participant Pre- and Post-Likert Scale

Further exploration of the comparisons drawn from student-participants’ Likert scale reporting indicated a positive impact on student-participants’ perception of their SEL when considering the overall conflated results, however, this cannot be considered significant overall. Significance could not be determined because when individual
student-participants’ results were considered for each question, it was noted that the increased shifts only impacted 1 to 2 of the 5 student-participants in each of the SEL domains, with the exception of autonomous use of mindfulness. Furthermore, none of the student-participants had an increased score in all nine domains of the SEL scale (Rechtschaffen, 2016), which would have indicated a high capacity for self-regulation of SEL in the classroom. This may be due in part to the age of the student-participants, as they are still developing self-regulatory skills and have trouble with abstract concepts and global views (Crain, 2007). These findings suggest that student-participants may need extended instruction on the general uses for and practical application of mindfulness practice, in conjunction with more opportunities to independently employ these skills through the guidance of a skilled practitioner as a means for assimilating the new mindfulness practice.

More specifically, the overall results indicated Caden and Tristan had the highest perceived increase in SEL, while Joshua showed no indication of being impacted by the study. (When reading the Figure 4.6 below, it is important to note a rating of 1 indicated a student-participant response of least like me, a rating of 2 indicated somewhat like me, and a 3 indicated most like me.) Based on the collected data, it is observed that Tristan showed the most perceived increase in SEL behaviors, with the domains of focusing, self-compassion, awareness of environment, and autonomous use of mindfulness increasing from somewhat like me to most like me. Caden showed a perceived increase from somewhat like me to most like me in the SEL domains of self-compassion, awareness of the environment, and autonomous use of mindfulness strategies. Danielle perceived an increase from somewhat like me to most like me in the SEL domains of
ability to transition between lessons and autonomous use of mindfulness strategies.

Lastly, Samantha’s perceived learning increased from *somewhat like me* to *most like me* in the SEL domain of overcoming challenges, while only showing a perceived learning increase from *least like me* to *somewhat like me* in the SEL domain of autonomous use of mindfulness strategies. While Joshua showed no change, he was observed most frequently by the teacher-researcher, the teacher-participant, and the instructional assistant to autonomously use mindfulness practices.

Two further inquiries were made at the end of the study: “Have you enjoyed participating in mindfulness?” and “Will you continue to use mindfulness on your own?”.
To the first query, 3 of the 5 student-participants (Caden, Danielle, and Tristan) indicated they enjoyed participating in the intervention (indicated below in Figure 4.7 with the rating of 3), while both Joshua and Samantha indicated neutral feelings towards their participation (indicated below in Figure 4.7 with the rating of 2). To the second query, Caden indicated he would continue to use mindfulness practices; Danielle, Joshua, and Tristan indicated they might continue to use mindfulness practice; and Samantha indicated she would not continue to use mindfulness practice. (This contra response may be in relation to Samantha’s association between mindfulness practice as a whole and the yoga poses she was hesitant to participate in during the intervention.) These results indicated that overall student-participants responded positively to the intervention being implemented, they were unclear how to implement the practice when the guidance provided during the intervention sessions was taken away. These findings may suggest that student-participants need more verbal directions and practice time with mindfulness practice strategies so they may assimilate these self-regulating skills in their individualized practice.

![Figure 4.7 Student-Participant Response to Intervention](image)

Figure 4.7 Student-Participant Response to Intervention
Semi-structured Interviews

Semi-structured interviews were conducted in a whole group setting to get a feel for student-participants’ immediate response to the intervention. While the semi-structured interviews were conducted in the whole group setting which included first-, second-, and third-grade students, only third-grade student-participant responses were recorded as a means of ensuring the validity of the results and to adhere to the ethical integrity of the study. These informal interviews provided an in-depth narrative of third-grade student-participants’ perceptions and beliefs about (a) general practice, (b) use of practice strategies, and (c) individual practice attitudes in response to the intervention.

Caden. Over the course of the study, Caden exhibited an interest in mindfulness strategies. During the interview sessions, he indicated the use of mindfulness strategies as a means to calm down. At the beginning of the intervention, Caden did not exhibit an understanding for mindfulness practice strategies beyond closing his eyes to what he called “meditate” and taking deep breaths (this is a practice he indicated learning during morning meeting with the teacher-participant). As the intervention continued, Caden stated he enjoyed using Balloon Breath to make his body feel relaxed, the Hoberman sphere to help him see his breath when he couldn’t focus, and his imaginary shell to ignore distractions in the room. Each of these responses coincided with the techniques taught during the intervention times. His responses suggested that he understood the different types of mindfulness practice strategies, practical use of mindfulness practice, and the possible benefits this practice could provide him both cognitively and physiologically. Throughout the intervention, Caden exhibited a positive response to mindfulness practice strategies. When asked, “With your thumbs, how did you enjoy
today’s session?” he always showed an upward thumb which indicated he enjoyed the practice time. When asked, “With your thumbs, do you think you will use this practice during the three-hour work cycle?” he always showed an upward pointing thumb indicating he planned to use mindfulness practice.

Danielle. When conducting the semi-structured interviews after each intervention session, Danielle always reacted positively. She always had a big smile on her face and would raise her hand to answer the questions posed to the whole group. Like Caden, in the beginning of the intervention she displayed awareness of mindfulness practice strategies and how to use them. During the first week of intervention, she indicated using deep breaths to stay calm, focused, and balanced when distracted. As the intervention continued, her answers became more elaborate. She would indicate using some of the mindfulness props that were left in the classroom after the mindfulness intervention sessions such as: feathers for Feather Breathing, the Hoberman sphere so she could “see how her lungs worked”, and the mindfulness jar, which she stated, “helps me relax when I feel stressed and mad”. She also indicated using different strategies such as yoga poses at recess, Balloon Breath, and Ocean’s Breath. During the fourth week of the study, Danielle stated, “I like to use the Counting Breath because it helps me to focus on my breath. This makes me focus better on my work”. During the fifth week of the intervention she further stated, “I like to do the yoga poses with my friends outside. It is fun and it helps us to not get in trouble in the classroom”. At the end of each intervention session she always gave the upward thumb to both questions regarding her general attitude towards enjoyment of the practice and plans to use the practice methods during the three-hour work cycle.
Joshua. During the first week of the intervention, Joshua did not exhibit the same confidence as the other student-participants when initially asked about mindfulness practice strategies. When first asked if he used mindfulness practice he did not respond. By the second week of the intervention he indicated using Balloon Breath (a breath practice taught during the first week of intervention). While Joshua always participated in the intervention, he gave limited answers to questions about his general practice and did not elaborate on his practice strategies without the teacher-researcher asking probing questions. He commented that during the use of the practice strategies he often felt calm but would not elaborate beyond this response. When asked if he enjoyed the intervention session Joshua gave the upwards thumb signal 12 out of 15 times and the sideways thumb signal (indicating he kind-of enjoyed the session) 3 out of 15 times. When asked if he would use the mindfulness practices, he indicated he would 9 out of 15 times and he might 6 out of 15 times.

Samantha. During the interventions, Samantha often displayed reluctant behavior in initiating poses and participating in breath work. She was an active and eager participant during imagery and breathing strategies but was hesitant to participate and reserved during the yoga postures. During the semi-structured interviews, she rarely raised her hand to provide input; when called upon to give insight on her general practice and use of practice strategies she would respond with a shoulder shrug or “I don’t know”. By the fourth week of the intervention she indicated that she liked using the mindful jar and that she used the jar at home when she was upset with her sister. When asked if she enjoyed the intervention sessions she gave the upward thumb signal 4 out of 15 times, the sideways thumb signal 9 out of 15 times, and the downward thumb signal (indicating she
did not enjoy the sessions) 2 out of 15 times. She indicated 14 out of 15 times that she would not use the mindfulness practice strategies during the three-hour work cycle and 1 out of 15 times that she might use the strategies during the work cycle.

**Tristan.** Tristan always participated and had a positive reaction to physically active activities such as Lion’s Breath and yoga poses that had quick flowing transitions. When student-participants were given an opportunity to demonstrate or share a pose they created with the class, he always volunteered to demonstrate for the group. He mentioned more than once during the interviews that he enjoyed the yoga poses and doing them with his friends. He also indicated that he enjoyed Lion’s Breath. Lion’s Breath is one of the more energizing breaths that were taught. Based on the observation of his need for high levels of activity, his indicated enjoyment and choice to use of this breath made sense. By the fourth and fifth week, Tristan indicated that he believed the strategies were helpful. He replied, “they help me to focus when other people are bothering me”. He also stated he was able to “relax better” and this allowed him to focus more on his work. Tristan always gave the upward thumb at the end of each intervention session for both practice attitude questions. The thumb symbols shown by Tristan indicated he enjoyed the sessions and that he planned to use the mindfulness strategies practiced during the three-hour work cycle.

When considering the overall findings from the semi-structured interviews, all student-participants were able to indicate different mindfulness strategies, uses for mindfulness practice, and the potential benefits using this practice for had for classroom learning. Student-participants were able to identify when and how they would use the strategies. Most of the student-participants, with the exception of Samantha, indicated
enjoying the daily practice and that they planned to practice using these strategies during the three-hour work cycle.

**Student-Participant Journals**

Journals were used to collect data on how student-participants understood and employed mindfulness strategies introduced during the intervention. The student-participants reflected three times a week on their perceived ability to stay on-task, as well as, on their independent employment of mindfulness practices as a strategy for self-regulating off-task behaviors.

At the end of the intervention, student-participant journals were coded by the teacher-researcher. Coding student-participants’ responses allowed the teacher-researcher to identify specific reasons the student-participants indicated finding it easy to stay on-task or reasons they found it difficult to stay on-task (see Table 4.1). In addition, the teacher-researcher used the student-participant journals to find evidence of student-participants using mindfulness strategies when they perceived themselves to be off-task. A percentage chart was developed to determine the percentage of time student-participants reported finding it easy to stay on-task or difficult to stay on-task, along with the percentage of time student-participants reported using mindfulness practice strategies (see Figure 4.8). Using both the coded information from the student-participant journals and the percentage chart of on- and off-task behaviors, the teacher-researcher further examined how often student-participants autonomously used mindfulness practice as a strategy for self-regulation when they perceived themselves as off-task during the three-hour work cycle (see Figure 4.9).
The results indicated that although all student-participants were able to reflect on and recorded their on- and/or off-task behaviors, several of the student-participants were not as likely to autonomously employ mindfulness practice strategies as a means of self-regulation when they perceived themselves to be off-task (see Table 4.1). The results from the comparison of the pre- and post- Likert student reported scale showed Caden and Danielle used mindfulness practices more frequently when they perceived themselves to be off-task during the three-hour work cycle (see Figure 4.5). Tabulations from Caden’s journal indicated he independently employed mindfulness strategies > 80% of the time he perceived himself to be off-task. Danielle’s journal indicated she employed mindfulness strategies > 40% of the time she perceived herself to be off-task. Caden’s and Danielle’s results do not mimic the rest of the student-participants’ results. In contrast, the other three student-participants’ journals all indicated they autonomously used mindfulness strategies < 30% of the time they perceived themselves to be off-task during the three-hour work cycle.

This discrepancy may in part be attributed to the young age of the student-participants. Around the ages of eight and nine, rapid development in the prefrontal cortex begins to occur (Flynn, 2010). The prefrontal cortex is responsible for EF and reasoning. Thus, children around this age are able to develop higher levels of cognitive reasoning, resulting in the ability to think about concepts in more abstract ways (Flynn, 2016c). The ability to cognitively reflect on their learning behaviors and to abstractly think about their desired outcome is what can potentially allow for students to autonomously employ strategies that will allow them to self-regulate off-task behaviors. In relation to the study results, this indicates that if this development had occurred in
student-participants they would find it easier to assimilate the new self-regulatory strategies into their autonomous SEL behaviors.

Through further exploration, data comparisons between the teacher-participant’s, the instructional assistant’s, and the teacher-researcher’s observations showed student-participants were able to identify when they were on- and off-task during the three-hour work cycle. Based on the results from student-participants’ journal entries, it was also evident student-participants were able to identify mindfulness practice strategies they perceived to help them self-regulate off-task behaviors.

Perhaps the most significant pattern that emerged from the student-participant journal data was that while student-participants were provided with a range of mindful strategies including imagery, physical postures, and breath work; student-participants gravitated heavily towards breath work, specifically Balloon Breath. Due to the concrete nature of Balloon Breath (student-participants actively engaged in holding the abdomen as they inhale and exhale) it is plausible that student-participants gravitated to the use of this breath practice more frequently because they were able to observe the breath within the body (Flynn, 2013). In addition, this abstract form of breathing allows student-participants to connect cognitive thinking with physiological changes that occur in the body.
### Table 4.1 Summary Results from Student-Participant Journals

<table>
<thead>
<tr>
<th>Student-participants</th>
<th>Reasons it was difficult to stay on-task as identified by student-participants</th>
<th>Reasons it was easy to stay on-task as identified by student-participants</th>
<th>Self-regulated Mindfulness Strategies utilized by the student participants.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caden</td>
<td>• Tired&lt;br&gt;• Testing&lt;br&gt;• Noisy&lt;br&gt;• Peers were distracting&lt;br&gt;• Hard to Concentrate&lt;br&gt;• Playing with peers&lt;br&gt;• Annoyed by peers</td>
<td>• Quiet&lt;br&gt;• Focused</td>
<td>• Balloon Breath&lt;br&gt;• Hoberman Sphere&lt;br&gt;• Hoberman Sphere&lt;br&gt;• Dragon’s Breath&lt;br&gt;• Lion’s Breath&lt;br&gt;• Imaginary Shell</td>
</tr>
<tr>
<td>Danielle</td>
<td>• Peers were distracting&lt;br&gt;• Testing&lt;br&gt;• Playing with peers&lt;br&gt;• Did not feel like working</td>
<td>• Quiet&lt;br&gt;• Focused</td>
<td>• Deep Breathing&lt;br&gt;• Hoberman Sphere&lt;br&gt;• Feather Breathing&lt;br&gt;• Wave Breath&lt;br&gt;• Counting Breathe&lt;br&gt;• Ocean Breath</td>
</tr>
<tr>
<td>Joshua</td>
<td>• Movement in room&lt;br&gt;• Tired&lt;br&gt;• Challenging work&lt;br&gt;• Peers were distracting</td>
<td>• Quiet&lt;br&gt;• Well Rested</td>
<td>• Balloon Breath</td>
</tr>
</tbody>
</table>
The various and distinctive sets of data from this study revealed interrelated correlations within the results. As suggested by Mertler (2014), the process of inductive analysis was used as a means for continually making comparisons between these various
data sets. Comparison of the data were completed as a means of discerning trends and outlying factors within the large quantities of quantitative and qualitative data collected. Taken together, three overarching findings began to take shape in relation to student-participant perception of their learning: (1) Self-Awareness: Awareness of Work Behaviors, (2) Self-Awareness: Language Development, and (3) Responsible Decision-Making: Shifting. The examination of these patterns offered allowed the teacher-researcher to examine student-participants’ responses to the intervention. As such, the teacher-researcher was able to draw inferences from the research question about whether the inclusion of mindfulness practice as a self-regulating strategy in the LEM classroom appeared to benefit the student-participants’ perception of learning and ability to autonomously refocus their behavior when they perceived themselves to be off-task.

**Self-Awareness: Awareness of Work Behaviors**

The first theme that emerged from the various data sets was that as the intervention progressed, student-participants’ faculty for discernment became more apparent. That is, as student-participants received progressive instruction on mindfulness practice, including how to monitor on-task (or mindful) behaviors, student-participants were able to bring more focused attention to their off-task behaviors. This noticing is supported by Grant (as cited in Willard and Saltzman 2015), who state that “as children approach the developmental age of 8- to 9-years, the faculty of discernment becomes stronger” (p. 103). They begin to notice nuanced differences about themselves in comparison to others, as well as discernments about the world around them. Student-participants were demonstrating the SEL behavior of self-awareness through their awareness of their on- and off- task behaviors.
At the beginning of the data collection period, both the teacher-participant and the instructional assistant indicated that, with the exception of Caden, the student-participants demonstrated off-task behaviors for more than half of the three-hour work cycle (see Figure 4.1 and 4.2). However, by the end of the intervention period, both the teacher-participant and instructional assistant indicated a notable change in work behaviors as marked by the Likert scale surveys for students on-task behaviors. The teacher-participant’s and the instructional assistant’s post-Likert scale results both indicated a growth in on-task behaviors in 4 of the 5 student-participants. The growth reported in the post-Likert scale showed student-participants remaining on-task for half to more than half of the work cycle. In addition to the teacher-participant’s and instructional assistant’s reporting, field notes from the teacher-researcher produced similar results, noting that, as the intervention weeks progressed, the percentage of on-task behavior observed increased.

These two data sets are intriguing on their own, yet in conjunction with student-participants’ journals, they show a conclusive picture that student-participants were becoming more self-aware of their on-task learning behaviors. For example, student-participants were able to discern days when they felt on-task from days when they felt off-task (see Table 4.1). They were able to identify specific reasons for why they perceived themselves to easily stay on-task or why it was difficult to stay on-task. On days that it was easy to stay on-task, all 5 student-participants almost always attributed this to the quiet environment. They also frequently attributed their ability to stay on-task to their ability to focus on their work that day. On days that it was difficult for them to stay on-task, student-participants most commonly wrote that this was due to peers being
loud and distracting, too much movement in the room, or because their work was too challenging. Through the examination of student-participant journal responses, it became evident student-participants demonstrated an increased awareness of perceived SEL as seen in their on-task learning behaviors.

Moreover, when examining student-participants’ awareness of SEL (demonstrated through their on-task and off-task behaviors) and student-participants’ ability to implement mindfulness practices autonomously when off-task, it was observed that the percentage at which student-participants used mindfulness strategies also increased. This positive shift reported by the teacher-participant and instructional assistant, in conjunction with the percentage for which student-participants self-reported independently employing mindfulness strategies when they perceived themselves to be off-task, showed student-participants were building an awareness for their SEL behaviors. This is to say, they were demonstrating self-awareness through their monitoring behavior and their use of self-regulating behaviors, to bring focused attention to the moment as a means of becoming on-task during the three-hour work cycle. Flook et. al. (2010) considered monitoring behaviors as a form of attentional direction or a way of bringing awareness to a specific behavior or sensation. Thus, by using monitoring behaviors student-participants were demonstrating an increased awareness for their SEL.

Furthermore, the semi-structured interview, as recorded daily on Mondays, Wednesdays, and Fridays after each intervention session, originally detailed student-participants’ lack of understanding for what it meant to be on-task. They attributed being on-task to the school’s student behavioral code to stay calm, focused, and balanced. However, when questioned, they were not able to elaborate on these terms. The lack of
descriptive language suggests the use of these terms was more rote knowledge than a true awareness for on-task work behaviors. Through the instruction on mindfulness practice and its application in the context of self-regulation, student-participants demonstrated an increased awareness of its applicability. An illustration of student-participants’ increased self-awareness is seen in the way student-participants identified mindful strategies they used and the practical application each of the strategies served. Danielle once stated she could use candle gazing to focus on one thing at a time, Joshua indicated he could use Lion’s Breath to get more energy, and Samantha stated she used the mindful jar to calm down when she was upset with her sister. Data collected from the teacher-participant’s and the instructional assistant’s pre- and post-Likert scale on student-participants’ independent use of mindfulness practice further illustrated a noticeable increase in student-participants’ autonomous use of this practice as a self-regulating behavior. In this way, these LEM third-grade student-participants demonstrated an increased awareness of their perceived learning behaviors through their self-awareness of autonomously managing off-task behaviors through self-regulatory mindfulness practice strategies.

**Self-Awareness: Language Assimilation**

As mentioned previously, during the initial implantation of the intervention student-participants’ descriptions of mindfulness were generic, mimicking the schools behavioral code: to be calm, focused, and balanced. For instance, during the first two weeks of the intervention, when student-participants were asked how they felt when practicing mindfulness skills, their answers were always one of the three above descriptors. Student-participants would remark, “I felt calm”, “I was balanced”, or “I was able to focus more”. Whereas by contrast, during the third week, student-participants
were able to provide unique descriptive explanations for how they felt when using the mindfulness practice strategies. Thus, the second overarching theme discovered in the findings was student-participants’ display of self-awareness through advanced assimilation of authentic language.

For example, during the fourth week, student-participants played the mindfulness game called *Mira’s Game* (Greenland & Harris, 2017). During this activity student-participants were provided with a colored stone. They were asked to gaze at the stone on the ground until they heard a clap. At this point they were to pick up the stone and feel the stone as they gazed at it, on the second clap they were to close their eyes as they continued to feel their stone, and on the third clap they were to pass the stone to their neighbor. Here, the whole process began again with a new stone. After this game, student-participants experienced having different physiological responses to the activity. Caden stated, “When I felt the rock with my eyes closed, I was soothed, it made me really sleepy”. While Tristan reported, “It was challenging for me to focus on the rock. I mean, I kept looking, but then I would think about something else”. Both of these responses demonstrated how student-participants were able to verbalize their own interpretations of a similar situation in different ways.

According to Grant (as cited in Willard and Saltzman 2015), around 9-years-old students’ discernment skills are developing at a more rapid pace. For this reason, it becomes an imperative time to invite verbal partner practices, and memory games that “focus on three domains: The first is their own sensations, feelings, and thoughts; the second is the conditions in which the experience took place; …the third domain is what the child imagines the other person was feeling and thinking, the experience of the other
person” (p. 104). Through experiences like Mira’s Game and many others over the course of the intervention, student-participants were given many opportunities to label their personal sensations, make discernments about their environment, and to practice with imagery.

The continued practice encouraged student-participants to process their new understanding through the act of making mindful discriminations. The processing of new understanding was demonstrated through their increase in authentic descriptive vocabulary. The growth in descriptive language was representative of their increased self-awareness. For instance, during one of the semi-structured interviews Danielle stated, “When I was stressed with a lesson, I felt like I couldn’t do it. But, I tried. I used the mindful jar. It made me calm down so I could do my work”. Another example was when Tristan stated he liked the yoga poses because he could get his energy out. He further remarked, “Getting my energy out lets me work harder because I don’t have to move around as much.” This specificity and advancement in descriptive language confirmed the student-participants were developing a greater capacity for implementing the practice strategies they were being introduced to during the intervention.

**Responsible Decision-Making: Shifting**

The third and final theme discovered during the inductive process was a phenomenon known as shifting. Shifting, as described by Flook et al. (2010) in a similar study previously discussed in the review of literature, is the redirecting of attention back to present sensations. In the case of this study, the third grader student-participants’ redirecting or refocusing of their attention to the cognitive sensation of being aware of being on-task. Student-participants demonstrated an increase in the SEL behavior of
responsible decision-making. Student-participants increase in responsible decision-making is illustrated through multiple data sets, including the combined increase of on-task learning behaviors and increased use of independently employed mindfulness practice strategies, noted by the teacher-participant and instructional assistant in comparisons from pre- to post-Likert scales (see Figures 4.1 and 4.2).

This shifting of responsible decision-making is also observed in student-participants’ percentage of times they independently employed mindfulness practice as a means of shifting their cognitive awareness back to more on-task behaviors (see Figure 4.9). For instance, Caden shifted from off-task to on-task behaviors through the use of mindful based strategies > 80% of the time he perceived himself as off-task. Danielle similarly shifted > 40% of the time, Tristan and Joshua shifted > 25% of the time, and Samantha shifted > 15% of the time. This indicated, while all student-participants were at varying levels of being able to choose mindfulness as a self-regulating behavior, they all had instances when they were aware of the need to bring awareness back to the present moment through the utilization of a self-regulatory practice. This shift in student behavior is attributed to repeated mindfulness instruction had on the student-participants.

According to Rechtschaffen (2016), “short attention training practices, repeated regularly, can make…differences in the…long term focus capacity of students” (p. 94).

**Conclusion**

Overall, themes of increased student-participant *Self-Awareness: Awareness of Work Behaviors*, *Self-Awareness: Language Assimilation*, and *Responsible Decision-Making: Shifting* emerged as key aspects within the data collected. According to the pre- and post-Likert scale reporting for student-participants the teacher-participant and
instructional assistant differed in their perceptions of students learning behaviors and use of mindfulness; the data collected from these scales demonstrated an increase in student-participants’ demonstrated on-task behaviors and autonomous use of mindfulness practice. The student-participant pre- and post-Likert scales demonstrated an increased shift in their perception of their learning based on SEL ratings. The teacher-researcher further added to this developing body of evidence by collecting observational field notes and conducting semi-structured interviews with student-participants. Based on semi-structured field notes, the teacher-researcher noted a shift in students-participants’ ability to use authentic language to describe their general use and physiological response to the use of mindfulness practice as a self-regulatory behavior. The teacher-researcher also observed an increase in student-participants’ ability to demonstrate on-task behaviors for longer durations of time during the three-hour work cycle as the intervention progressed.

In accordance with Flynn’s (2016a) rational that “tying the practice back to them allows kids to make connections/integrate the mind-body connection and gives an opportunity for reflection” (p. 41), the student-participants in the study were given opportunities to deepen their ability to perform mindful practice strategies more authentically as the intervention progressed. However, it should be noted that the level of this behavior observed varied from student-participant to student-participant as the nature of the action research study was fully dependent on active student participation. As such, student-participants were able to inherently integrate the new strategies learned into their work time behaviors as a means for managing off-task behaviors. The findings from this study support the inclusion of mindfulness practice in a LEM setting as a means for increasing student-participants’ perception of their learning process.
CHAPTER FIVE
DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS INTRODUCTION

Chapter Five of this dissertation provides a descriptive summary of the PoP, research question, and overview of the research findings from the presented action research study. Following the descriptive summary, there is a brief outlining of questions that emerged when conflating the research findings along with further suggestions for additional research opportunities related to mindfulness practices in the elementary school setting. To conclude, a detailed explanation of the action plan developed by the teacher-researcher and teacher-participant are discussed, which includes the implications of the findings and suggestions for future research. Succeeding the chapter discussion, closing remarks have been included that sum up the entirety of the action research process.

Research Question

What impact would mindfulness practices have on the independent learning process of third-grade students in a Montessori setting?

Statement of Problem

Based on learner-centered pedagogy, the Montessori environment has been a space where students independently navigate, construct, and reflect on their learning
(Lillard, 2007). As such, the Montessori environment requires students to assimilate autonomous learning behaviors. The action research study took place in a LEM classroom where third-grade students demonstrated difficulty with incorporating autonomous SEL behaviors. In response to these instructional concerns, the teacher-participant and the teacher-researcher worked together to develop an inquiry that addressed the needs for increased autonomous SEL behaviors in students. Working together, using the support model for action research, they explored the impact mindfulness practices had on third-grade students’ learning process.

**Dissertation in Practice Overview**

The action research study included an independent variable (mindfulness practice intervention based on the *ChildLight Yoga®* model), a dependent variable (student-participants’ perception of learning), and a controlled variable (the time in which the intervention and observations were conducted). The intervention, which focused specifically on the third-grade students in this LEM classroom setting, was conducted for a duration of five-weeks on Monday, Wednesday and Friday of each week from 7:30-8:00 a.m. Observation occurred on the same days (Monday, Wednesday and Friday) from 9:00-9:30 a.m.

The specific data collection instruments in this study surveyed third-grade student-participants’ perceptions of learning and ability to use a strategy (mindfulness practice) as a self-regulation tool. Data were reported in student pre- and post-Likert scales on SEL behaviors, teacher-participant and instructional assistant pre- and post-Likert scales on student-participants’ on-task learning behaviors and on student-participants’ use of mindfulness, and student-participant journaling. To assist with
interpreting data, field notes were collected and semi-structured interviews were conducted by the teacher-researcher to provide further descriptive information of the large quantities of data.

Analysis on the impact of this mindfulness intervention on these third-graders indicated student-participants demonstrated increased perceptions of three distinct areas as it relates to SEL: (1) Self-Awareness: Awareness of Work Behaviors, (2) Self-Awareness: Language Development, and (3) Responsible Decision Making: Shifting. Overall, the results indicated student-participants perceived an increase in autonomous SEL learning behaviors. Student-participants’ increased perception of their learning process was demonstrated in their increased awareness of on-task and off-task behaviors. When student-participants perceived themselves to be off-task they progressively became more likely to employ mindfulness practice strategies as a means of self-regulating their learning behavior as indicated by student-participant journals and Likert scales.

Students’ ability to self-regulate their behavior was supported by the five different data sets that all provided unique vantages of student-participants’, teacher-participant’s, instructional assistant’s, and teacher-researcher’s reports. Some of the results in subcategories of the Likert scale surveys on SEL behaviors indicated no change or a modest decrease by the teacher-participant, instructional assistant, and student-participant ratings; when considering the results as a whole, the data indicated the student-participants benefited from the mindfulness intervention.

Through analysis of the data findings, the teacher-researcher noted that two key features impacted the research findings. The first key feature includes the impact that was made on the teacher-participants instructional practice. By participating in the
intervention, the teacher-participant increased her skill base of mindfulness practice including: breath work, providing imagery stories, demonstrating yoga poses, and engaging with students in deep concentration activities. She was able to use these skills in her modeling and classroom instruction. She was also able to provide new shelf lessons that went along with the mindfulness practice strategies that were introduced during the intervention. (Shelf lessons are placed on a classroom shelf for students to use independently during the three-hour work cycle. The lessons she placed on the shelf included mindful activities such as mandala coloring sheets, candles for candle gazing, feathers for balancing, and stones for mindful concentration.) This increased understanding resulting in her ability to continue to implement mindfulness practice effectively once the intervention sessions had ended.

The action research study supported collaboration. Collaboration occurred on a regular basis between the teacher-researcher and the teacher-participant. Collaboration also occurred regularly between the teacher-researcher and the student-participants. The teacher-researcher was able to build relationships with all participants. On the foundation of this relationship, the teacher-researcher and the teacher-participant encouraged student-participants to establish goals for the use of mindfulness strategies, to think through the causation, and to reflect on past experiences with these strategies. As such, the student-participants were provided with supporting guidance that allowed them to tie the practice back to themselves. This guidance is supported in the *ChildLight Yoga®* model, because instructional guidance allows for elementary aged students to make connections between the abstract concept of being mindful and the concrete physiological
responses their bodies had to the mindfulness practice strategies they engaged in during the intervention (Flynn, 2016a).

**Implications**

This action research study demonstrates the viability and potential benefits of implementing a mindfulness intervention in the LEM setting. Overall results indicated Student-participants perceived increased independent learning process, specifically in their ability to become self-aware of on-task behaviors and to self-regulate when off-task. Since this study focused on a small study population (N = 5) and was isolated to the LEM setting, generalizations cannot be made to a larger population of students. However, this does not negate the potential benefits that the results from the study present. This study establishes the promise of incorporating mindfulness practice in the elementary curriculum. Autonomy in learning is becoming a more prevalent need as noted by the move towards academic standards that teach towards developing 21st graduates who are able to demonstrate the following qualities: independence in learning, reflective practices, and self-regulation (SC Department of Education, 2015, p. 12). Furthermore, the skill of being mindful supports a range of skills and capacities from improved cognition, EF (Black & Fernando, 2013; Flook et al., 2010; Warner, 2005), self-regulation (Flook et al., 2015; Wilson & Dixon, 2010), and SEL competencies (Flynn, 2016b) that have important life-long consequences for students (Bertin as cited in Willard & Saltzman, 2015).

**Action Plan**

The results of the study support the belief that third-grade LEM students may increase perceptions of SEL by using mindfulness practice as a means for self-regulating off-task behaviors. Using the information gathered from the analysis process, the teacher-
researcher developed an action plan comprised of three specific steps to (1) include mindfulness instruction in the LEM setting consistently, (2) share the findings and implications with school level and district level stakeholders, and (3) conduct a three-year longitudinal study based on the emergent questions that evolved during the preliminary stages of the action research study. According to Mertler (2014), when conducted properly, the action research process alleviates the gaps that exist between the bodies of knowledge that are developed by trained researchers and practicing teacher-researchers. As such, this process outlines how the research findings will be used in a practical setting, communicated to stakeholders, and what future actions will be taken as a result of the research findings.

The first step of the action plan is to include mindfulness instruction that promotes SEL behaviors consistently in the LEM setting that is conclusive of all age ranges. The participating LEM setting serves first-, second-, and third-grade students who are all expected to assimilate autonomous learning behaviors over the course of their time in this learning setting. These students remain in the same classroom setting for all three years. To support these students over this time from, a new mindfulness curriculum platform will be developed implemented by the teacher-researcher that will be shared with the whole school. Furthermore, as a current CRT for the school, the teacher-researcher plans to advocate for the inclusion of mindfulness learning behaviors focused on all LEM students.

Teachers in the Montessori setting of this school district have all received yoga and mindfulness training where they were provided with introductory mindfulness practice strategies. According to Rechtschaffen (2016), if a practitioner is to find success
in their mindfulness instruction with students, they must first develop a deep understanding for the practice and integrate this practice into their daily lives. In light of the findings from the research study paired with the advanced yoga and mindfulness training of the teacher-researcher and two other individuals, the teacher-researcher plans to offer more in-depth mindfulness training for the Montessori teachers in her school.

The second component of the action plan includes sharing the research findings on a larger scale with other elementary teachers and in the school setting during an upcoming district-wide professional development session. At the beginning of each new school year, the district hosts a Closing the Achievement Gap professional development conference. During this day, elementary school teachers and rotate through four training options that relate to the core subjects they teacher. The teacher-researcher plans to lead one of these sessions. At which point, the teacher-researcher will share the result findings from the action research study. By sharing these findings on a larger scale outside of the isolated LEM setting of her school, the teacher-researcher will obtain feedback from an insider/outsider perspective.

The information gained from this feedback will be a unique perspective that can support future action research projects as it relates to the PoP for the above action research study. The collection of insider/outsider feedback is important according to Mertler (2014) because he believes that when conducting action research, a practitioner is tasked with going beyond looking for predetermined answers. The goal of action research is to go on an explorative journey that leads to discoveries and “creative solutions to educational problems” (p. 21). The feedback gathered on this day will provide another view-point for the data collected. These new findings will be added to the formal
presentation to be presented to district stakeholders to advocate for further exploration of mindfulness-based practice within the elementary setting.

The third component of the action plan is to conduct a more thorough research study that addresses the PoP. The proposed study will be a three-year longitudinal study to track the perceived learning process of first-grade students as they transition over time from first to the third grade. Much like the original study, the newly developed study will use mixed-methodology comparative design measures. The new study will differ from the action research study in length and age range of student-participants. The new study will include following one set of students from the LEM setting for an extended three-year time span, as students transition from first grade up to the completion of the third grade and will contain a control group and a test group. Extending the study based on these parameters should allow for the teacher-researcher to find significance within the data findings as well as make generalizations to other populations within the district.

As stated earlier, action research is an on-going process. One inquiry will lead to another that will lead to another (Dana & Yendol-Hoppey, 2014). In accordance, Mertler (2014) states that action research is a spiraling process that does not produce conclusive results. As such, the choice is up to the practitioner to continue to delve into the inquiry process. By reframing the study to become a longitudinal study that includes students from two different LEM classes (one control group and one test group) the teacher-researcher will have access to a wider variety and volume of data sets. This will provide a more in-depth description of the effect of instructing mindfulness and the potential impact on students’ perceived learning.
The proposed research trajectory (see Figure 5.1) illustrates the outline for the new plan. This plan illustrates how the mindfulness intervention will be provided to both classes, one receiving the embedded daily mindfulness instruction, and the other class not
receiving the embedded instruction. Both classes will be closely monitored for three years using similar instruments to the above action research study: student-participant pre- and post-Likert scales, teacher-participant and instructional assistant pre- and post-Likert scales, student-participant journaling, semi-structured interviews conducted by the teacher-researcher, and observational field notes conducted by the teacher-participant and the teacher-researcher. Extended exploration into the perceived learning habits of LEM students, projects to provide a more comprehensive view into the needs of these students in this specific learning environment as it pertains to developing independent learning faculties.

**Suggestions for Future Research**

The goal of action research is for the researcher to take “an inquiry stance towards teaching. The inquiry stance becomes a professional positioning, owned by the teacher, where questioning one’s open practice becomes part of the teacher’s work” (Dana & Yendol-Hoppey, 2014, p. 13). The questions that emerge become an integral part of the foundations for the development of an action plan.

In consideration of the action research study, questions emerged based on the inherent limitations and challenges experienced during the study. The limitations included the small study size ($N = 5$), the short five-week duration of the study, and the difference in the study population the school-wide population. Through reflection of the action research process, the following questions emerged in the mind of the teacher-researcher: (a) Were there other data sources that could have been collected that would have allowed the teacher-researcher to more appropriately answer the research question? (b) If the student-participants showed an increase in perception of SEL behaviors through
self-reporting, then why did their self-reporting of self-regulatory behaviors not increase to the same extent? and (c) Would developing a longitudinal study that focused on the learning process of first-grade students as they progress to third grade produce more conclusive data?

Due to the limitation of time, the teacher-researcher limited data collection from the teacher-participant and instructional assistant to Likert scale survey responses. The consideration of the short intervention time led to the wondering: Were there other data sources that could have been collected that would have allowed the teacher-researcher to more appropriately answer the research question? This question stemmed from the realization that teacher-participant and instructional assistant are in the classroom every day with their students for the full extent of the day. They have had extended time to conduct observations and to interview students. The inclusion of observational data collected and interviews from these two individuals would create a clearer description of what was occurring in the classroom during the intervention.

A secondary question that emerged through the exploration of data had to do with the conflicting results collected from student-participant journal responses. While data indicated that student-participants’ perception of learning behaviors increased during the study, the percentage of time which they autonomously employed mindfulness practice strategies as a means for self-regulating was considerably low in 3 of the 5 student-participants. This led to the wondering: If the student-participants showed an increase in perception of SEL behaviors through self-reporting, then why did their self-reporting of self-regulatory behaviors not increase to the same extent? These findings may produce further questions that digress into specific attributes of SEL. These areas may include, but
are not limited to, self-management, self-awareness, social awareness, responsible decision-making, and relationship skills (CSEL, 2017). Thus, a study that focuses more specifically on testing students’ perceptions of their learning process in regards to each individual SEL competency, as opposed to measuring them as a whole, may produce more descriptive and conclusive results in regards to students’ self-regulatory behaviors.

The third question that emerged positioned itself around the sample size and length of the study. Would developing a longitudinal study that focused on the learning process first-grade students as they progress to third grade produce more conclusive data? When implementing the intervention, all student-participants were allowed to participate in the mindfulness activities. (However, data were only collected on the specific third-graders for which consent and assent were obtained.) While implementing the intervention, it did not go unnoticed by the teacher-researcher and the teacher-participant that the younger students seemed to enjoy and responded well to the instruction. Additionally, the teacher-participant had similar concerns for her younger students learning behaviors. This suggests, future exploration of mindfulness practices in the LEM setting may warrant the inclusion of all three grade levels, with a specific longitudinal study conducted on tracking the perceived learning process of first-grade students as they progress in the LEM setting over the course of three-year period. Tracking students over the three-year period will provide a level of descriptive data that is not present in today’s academic literature on mindfulness practice in a LEM setting. The data gathered will give a unique frame of reference into how the implementation of mindfulness practice impacts the learning perception of students as they progress through the elementary years.
The power of reflection allows the researcher to become a more thoughtful practitioner (Mertler, 2014). Thoughtful reflection is a key component of the action researcher process, as it allows for the researcher to learn from critical examination of one’s own authentic practice. The practice of reflection is a continuation of the inquisitive nature of the action research process. Through reflection the researcher continues to connect ideas and to create new ones (Dana & Yendol-Hoppey, 2014). As such, the teacher-researcher of this study became an active reflective practitioner.

**Conclusion**

Educators in the Montessori setting strive to develop learner-centered environments that encourage autonomous learning behaviors (Lillard, 2007). Teachers within these settings are trained to “follow the child” through constant observation of students’ social, emotional, and cognitive development. This on-going process of child-watching leads the teacher through a process of creating a vivid and in-depth understanding of their individual students’ abilities, areas of growth, and outlying behaviors. This understanding is used to fuel continued development of individual and group learning in the classroom. Sharing in a respect for the Montessori philosophy, the teacher-participant and the teacher-researcher worked together as they had the same intent when it came to addressing the needs of the students presented in the above study.

The study presented here sought to examine the perceived learning process of third-grade students in a LEM classroom in respect to a mindfulness intervention. The inclusion of mindfulness practice fit within the presented classroom environment because this practice provided an avenue for which students can begin to practice and enhance self-regulation by focusing their concentrations on the present moment. The continued
Practice of these skills over time provides the practitioner with advanced control of their mind and body (Kabat-Zinn, 2003). This is in direct relationship to the goal of a Montessori teacher, to develop concentrated thinkers with nonjudgmental thought patterns (Montessori, 1995b) because it is believed that a person with such mastery has the ability to think on a metacognitive level allowing for true self-regulation of behaviors.

Through investigation of the teacher-wondering on the impact mindfulness practices had on third-grade students’ perception of their learning process, the teacher-researcher was able to embark on a journey of inquiry and discovery. Teacher inquiry is a powerful tool in the field of education, as the practice “involves searching, exploring, studying children, examining one’s own practice, and discovering and rediscovering new possibilities” (Thompson-Grove, 2014, p. xiv). That is exactly what took place over the course of the presented action research study. Following the action research model outlined by Mertler (2014) the teacher-researcher explored a possible solution to a real-world problem that allowed them to further examine their own practice as a professional educator. Through the development of a research study they were able to examine their own teaching practice. The examination of this process led to new discoveries for the implementation of mindfulness intervention in the LEM setting.

Overall, the results from the study support the inclusion of mindfulness practice in the LEM setting as an instructional practice that will increase students’ perception of learning as defined by the SEL competencies. This was deduced through the overarching themes that emerged from the conflated research findings. Collectively these findings showed that student-participants increased in the following SEL competencies: (1) Self-

The journey led the teacher-researcher into further inquiries, as they considered both the findings and limitations of the study. Based on these two factors an action plan was developed that included three phases. The first phase outlined the expansion of the mindfulness program within the elementary setting. The second phase included the sharing of result findings with other elementary teachers as a way of advancing the study by receiving outsider’s interpretations of the implications for the findings that will be shared with school stakeholders. The third phase was the development of a new longitudinal action research study that will eliminate the limitations found in the presented study and provided a new avenue for inquiry that will provide more in-depth data based on the inquiry. All of these phases show the growth process that occurred within the teacher-researcher as a result of embarking on this journey. As a result of the embarkation, work was cultivated that can be shared within her educational community and can possibly inspire other educators to go on similar journeys (Yendol-Hoppey, 2014). In turn, adding to the richness and quality of authentic knowledge shared within this professional community.

According to Montessori (1995a), a “moment of healing” occurs once “freedom of action” develops within the child’s personality (p.206). Thus, it is through the healing work of teachers, finding solutions to the obstacles that hinder student growth that provides new avenues for success. This success, overtime, provides freedom or autonomy within students. For it is believed by Montessori that the obstacle to this freedom are “stones in the wall by which the soul of man has become imprisoned” (p. 221). So, let the
work of educators be revolutionary. Through the blazing of this new revolution, the inquiry method will allow educators to provide avenues for developing students that are not imprisoned by old antiquated teaching methods but are freed through the journey of inquiry and driven purpose.
REFERENCES


racial and ethnic minority students practicing the transcendental meditation program. *Journal of Instructional Psychology, 38*(2). 109-116.


Quach, D., Jastrowski Mano, K. E., & Alexander, K. A. (2016). Randomized controlled
trial examining the effect of mindfulness meditation on working memory capacity in adolescents. *J Adolesc Health.* 58(5), 489-96.


| Week 1: Focus on introducing (yoga and mindfulness) concepts and auditory perception. | Day 1 | Mindful Activity:  
- Mindful Listening Activity Card (Greenland & Harris, 2017)  
Yoga Sequence:  
- Sun Salutation from p. 272 (Flynn, 2013)  
Game/Activity:  
- Community Circle Activity Card (Guber & Kalish, 2005)  
Breath Work:  
- Hoberman Sphere from p. 28 (Roberts, 2014) |
| --- | --- | --- |
| Day 2 | Yoga Sequence:  
- Sun Salutation from p. 272 (Flynn, 2013)  
Breath Work:  
- Hoberman Sphere from p. 28 (Roberts, 2014) |
| Day 3 | Mindful Activity:  
- What Did I Hear Activity Card (Greenland & Harris, 2017)  
Yoga Sequence:  
- Sun Salutation from p. 272 (Flynn, 2013)  
Game/Activity:  
- Morning Movements Activity Card (Greenland & Harris, 2017)  
Breath Work:  
- Balloon Breath from p. 28 (Roberts, 2014) |
| Week 2: Focus of auditory perception. | Day 4 | Mindful Activity:  
- Fading Tone Activity Card (Greenland & Harris, 2017)  
Yoga Sequence:  
- Reach for the Sun from p. 278 (Flynn, 2013)  
Game/Activity:  
- Back-to-Back/Face-to-Face (modified from a lesson presented during Basic Yoga and Mindfulness Teacher training) |
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<th>Day 4 Cont.</th>
<th>Breath Work</th>
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<td>• Reach for the Sun from p. 278 (Flynn, 2013)</td>
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<td>Game/Activity:</td>
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<td>• Class Mandala (modified from a lesson presented during Yoga for Schools training)</td>
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<td>• Feather Breath from p. 36 (Roberts, 2014)</td>
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<td>Yoga Sequence:</td>
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<td>Game/Activity:</td>
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<td>• Back-to-Back/Face-to-Face (modified from a lesson presented during Basic Yoga and Mindfulness Teacher training)</td>
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<td>Breath Work:</td>
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<td>Yoga Sequence:</td>
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<td></td>
<td>• Play Time from p. 281 (Flynn, 2013)</td>
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<td>Game/Activity:</td>
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| Week 4: Focus on imagery and taste perceptions. | Day 10 | Mindful Activity:  
• Mira’s Game Activity Card (Greenland & Harris, 2017)  
Yoga Sequence:  
• Play Time from p. 281 (Flynn, 2013)  
Game/Activity:  
• Slowly, Slowly Activity Card (Greenland & Harris, 2017)  
Breath Work:  
• Lion’s Breath from p. 47 (Roberts, 2014) |
|---|---|---|
| | Day 11 | Yoga Sequence:  
• Play Time from p. 281 (Flynn, 2013)  
Breath Work:  
• Lion’s Breath from p. 47 (Roberts, 2014) |
| | Day 12 | Mindful Activity:  
• One Bite at a Time Activity Card (Greenland & Harris, 2017)  
Yoga Sequence:  
• Play Time from p. 281 (Flynn, 2013)  
Game/Activity:  
• Hello Game Activity Card (Greenland & Harris, 2017)  
Breath Work:  
• Choose Your Breathing Anchor Activity Card (Greenland & Harris, 2017) |
| Week 5: Focus on imagery and physical perceptions. | Day 13 | Mindful Activity:  
• Three Good Things Activity Card (Greenland & Harris, 2017)  
Yoga Sequence:  
• Warrior from p. 284 (Flynn, 2013)  
Game/Activity:  
• Shake it Up Activity Card (Greenland & Harris, 2017)  
Breath Work:  
• Feel the Vibration from p. 34 (Roberts, 2014) |
| | Day 14 | Yoga Sequence:  
• Warrior from p. 284 (Flynn, 2013)  
Breath Work: |
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<tr>
<th>Day 15</th>
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<td>• Mystery Box Activity Card (Greenland &amp; Harris, 2017)</td>
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<td>Yoga Sequence:</td>
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<td>• Warrior from p. 284 (Flynn, 2013)</td>
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<td>Game/Activity:</td>
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<td>• Five Ways Activity Card (Greenland &amp; Harris, 2017)</td>
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<td>Breath Work:</td>
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<td></td>
<td>• Bumblebee Breath from p. 35 (Roberts, 2014)</td>
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APPENDIX B

PRE- AND POST-LIKERT SCALE OF STUDENT’S WORK BEHAVIOR-COMPLETED BY TEACHER

Using the Likert Scale provided. Please select the number that most accurately represents the student currently.

*Note: On-task behavior is described as students who are self-motivated, continually engaged in appropriate work choices, and transition from one lesson to the next.*

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<td>Somewhat off-task. Off-task half of the work cycle.</td>
<td>On-task more than half of the work cycle.</td>
<td>On-task the full work cycle.</td>
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<td>On-task the full work cycle.</td>
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APPENDIX C

PRE- AND POST-LIKERT SCALE OF STUDENT’S WORK BEHAVIOR-
COMPLETED BY INSTRUCTIONAL ASSISTANT

Using the Likert Scale provided. Please select the number that most accurately represents
the student currently.

Note: *On-task behavior is described as students who are self-motivated, continually engaged in
appropriate work choices, and transition from one lesson to the next.*

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<td>Off-task more than half of the work cycle.</td>
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APPENDIX D

USE OF MINDFULNESS STRATEGIES AS OBSERVED BY TEACHER
PRE- AND POST-LIKERT SCALE

Use of Mindfulness Strategies as Observed by Teacher

Using the Likert Scale provided, please indicated how frequently you observed students using choosing to use mindfulness strategies outside of any mindfulness instruction you may have provided them. That is, how often did they autonomously choose to use a mindfulness strategy on their own during the three-hour work cycle.

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<td>Never uses mindfulness practices autonomously of teacher direction.</td>
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<td>Sometimes uses mindfulness practices autonomously of teacher direction.</td>
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<td>Always uses mindfulness practices autonomously of teacher direction.</td>
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APPENDIX E

USE OF MINDFULNESS STRATEGIES AS OBSERVED BY INSTRUCTIONAL ASSISTANT PRE- AND POST-LIKERT SCALE

Use of Mindfulness Strategies as Observed by Instructional Assistant

Using the Likert Scale provided, please indicated how frequently you observed students using choosing to use mindfulness strategies outside of any mindfulness instruction you may have provided them. That is, how often did they autonomously choose to use a mindfulness strategy on their own during the three-hour work cycle.

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<th>Caden</th>
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APPENDIX F

STUDENT-PARTICIPANT PRE- AND POST-LICKERT SCALE

Pre-Likert Scale
The following survey will ask you a series of questions about your mindfulness and worktime experience. Emojis are used to indicate how likely you relate to the scenario (or situation). A face where the lips are turned down indicate you do not agree or feel this way. A face where the lips are in a straight line indicate you sometimes agree or sometimes feel this way. A face with the lips turned up indicate you strongly agree or always feel this way. Each question will be read aloud to you. Follow along, as the questions and answer choices are read out loud. Once a question and the answer choices are read out loud you are to circle the Emoji that best describes you before we move to the next question. We will go through each question 1 at a time. Does anyone have any questions?

Focused Attention

1. How well are you able to focus on tasks during the 3-hour work cycle?

<table>
<thead>
<tr>
<th>☹️</th>
<th>☹️</th>
<th>☀️</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am often unfocused. I find it hard to concentrate on completing my classwork during the 3-hour work cycle.</td>
<td>For the most part I am focused during the 3-hour work cycle, but sometimes I may doodle, wonder around the room, or interact with my friends on activities that are not work related.</td>
<td>I am always highly focused on my classwork, during the 3-hour work cycle.</td>
</tr>
</tbody>
</table>
Resilience

1. How well do you overcome challenges during the 3-hour work cycle?

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🖖</td>
<td>I find it hard to overcome challenges. When faced with a challenge I did not know what to do, I always ask for help.</td>
</tr>
<tr>
<td>🖖</td>
<td>For the most part I am able to overcome challenges, but I sometimes need to ask for help.</td>
</tr>
<tr>
<td>😊</td>
<td>I am able to overcome challenges independently during the 3-hour work cycle.</td>
</tr>
</tbody>
</table>

Self-compassion

2. How kind are you to yourself?

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🖖</td>
<td>I am hard on myself.</td>
</tr>
<tr>
<td>🖖</td>
<td>I somewhat hard on myself.</td>
</tr>
<tr>
<td>😊</td>
<td>I am loving towards myself.</td>
</tr>
</tbody>
</table>

Empathy

3. How nice are you to others?

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🖖</td>
<td>I find it difficult to get along with my peers. I often argue with or avoid peers.</td>
</tr>
<tr>
<td>🖖</td>
<td>I sometimes find it difficult to get along with my peers. I argue with or avoid peers some of the time.</td>
</tr>
<tr>
<td>😊</td>
<td>I always get along with my peers. I almost never argue with or avoid peers.</td>
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</table>
Open-mindedness

4. How aware are you of your environment during the 3-hour work cycle?

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<tbody>
<tr>
<td>😞</td>
<td>😞</td>
<td>😊</td>
</tr>
<tr>
<td>I am often distracted and unaware of my surroundings during the 3-hour work cycle.</td>
<td>I am sometimes distracted and unaware of my surroundings during the 3-hour work cycle.</td>
<td>I am aware of my surroundings during the 3-hour work cycle.</td>
</tr>
</tbody>
</table>

Emotional self-regulation

5. How is your impulse control?

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<tbody>
<tr>
<td>😞</td>
<td>😞</td>
<td>😊</td>
</tr>
<tr>
<td>I find it difficult to control my impulses. I often act without thinking things through.</td>
<td>I sometimes find it difficult to control my impulses. I sometimes act without thinking things through.</td>
<td>I never find it difficult to control my impulses. I always think things through before acting.</td>
</tr>
</tbody>
</table>
Metacognition

6. How busy is your mind during the 3-hour work cycle?

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<tr>
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<th>😐</th>
<th>☀️</th>
</tr>
</thead>
<tbody>
<tr>
<td>My mind is frenzied. I find it hard to concentrate on my work.</td>
<td>My mind is sometimes frenzied. Sometimes I can concentrate, but other times I find it hard to concentrate on my work.</td>
<td>My mind is tranquil. I always find it easy to concentrate on my work.</td>
</tr>
</tbody>
</table>

Cognitive Flexibility

7. How easy is it for you to transition from one task to another?

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<tr>
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<th>☀️</th>
</tr>
</thead>
<tbody>
<tr>
<td>I become confused when transitioning from one task to another.</td>
<td>I sometimes get confused when transitioning from one task to another.</td>
<td>I find it easy to transition from one task to another.</td>
</tr>
</tbody>
</table>
8. Have you used mindfulness practices before?

<table>
<thead>
<tr>
<th></th>
<th>This is a new experience. I never use mindfulness strategies before.</th>
<th>I may have used mindfulness practices before.</th>
<th>I am familiar with mindfulness practices. I have used mindfulness strategies.</th>
</tr>
</thead>
</table>

*Note.* Development of the Student-Participant Likert Scale was modeled after the Inner Assessment developed by Rechtschaffen (2016). The Likert scale was adapted for this study for the use with third-grade students.
APPENDIX G

INTERVIEW GUIDE

Semi-Structured Interview with third-grade students:

General Practice:

• Do you use any of the mindfulness practices?
  
  o If so, which ones?

• How do you feel about using mindfulness practices?

• Do you believe these practices are helpful for you?
  
  o In what way?

Use of Practice Strategies (Questions come from the curriculum task cards):

General Practice Attitude Questions:

• With your thumbs, how did you enjoy today’s practice?

• Do you think you will use this practice during the three-hour work cycle?
APPENDIX H
STUDENT JOURNAL PROMPTS

During worktime I found it easy to focus and stay on-task. It was easy because...

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________


During worktime I found it difficult to focus and stay on-task. It was difficult because...

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________


If you used a mindful strategy, which one did you use and how. Explain below.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
APPENDIX I

PARENTAL CONSENT FORM

March 19, 2018

Dear Parent or Guardian,

This year I will be implementing an action research study I have developed through my graduate studies at the University of South Carolina. This is part of the process for earning my Doctorate degree in Curriculum and Instruction. The process of action research allows educators to continue to refine their instructional practices as they test actions that can influence learning and behavioral outcomes. For my action research study, I have chosen to test the impact of mindfulness practices on third-grade students’ independent learning processes (autonomy in learning).

During the research process I will use student surveys, journal entries, and observations to gather information about your child’s learning behaviors and their perception of their learning behaviors. These sources of data will be instrumental in helping both Ms. Mulberry and me in creating a learning environment that promotes autonomous learning. The information gathered will be used in my dissertation in practice, however your child’s name will not be used in any way. Pseudonyms will be used to protect the anonymity of all participants in the study.

Your agreement and your child’s participation in this action research study are completely voluntary. Please read the following information about the study. If you agree to allow your child to participate in the study, please sign and return the form to your child’s teacher by Friday, March 23, 2018.

Survey Content

The surveys, journal entries, and observations gather information on your child’s autonomous learning behaviors, their perception of their learning behavior, and their attitude towards mindfulness practice as an instructional strategy.

Voluntary

Your child’s participation in this study is 100% voluntary. In addition, to participate your child does not have to take their survey or complete journal entries. Students who participate only have to answer questions they want to and that they feel comfortable answering. When completing surveys and journal entries students may provide only the information they feel comfortable providing.
Anonymous and Confidential
The survey, journal entries, and observations collected will be kept confidential at all times during and after the study. Pseudonyms will be used in any research documentation. All documents will be kept in a secure and locked location when not being used by the researcher. All documents will be destroyed once they are no longer needed for the research process.

Benefit of the Study
The study will help the curriculum resource teacher and teacher-participant plan and/or learn more about how to design activities to improve your child’s autonomous learning in class. This means their ability to complete classroom tasks with confidence without the teacher-participant directly instructing them.

Potential Risk
There is no known risk of physical, mental, or emotional harm to your child. Your child will not have to answer any questions unless s/he wants to.

Not Religious Practice
While mindfulness and yoga practices will be used in the classroom it is important to note that the practice that will be implemented in the school setting is not a religious practice and will not teach religious perspectives.

Survey Review
Beginning May 7, 2018, a copy off the survey will be available for previewing by contacting Mrs. E. Simone Mori at 803-240-1469 or emelyn.mori@richlandone.org.

For Further Information
Please call Mrs. E. Simone Mori at 803-240-1469 or email any questions or concerns to emelyn.mori@richlandone.org.

Please sign and return to me by, Friday, March 23, 2018.

Sincerely,

Mrs. E. Simone Mori

Name of Child: ____________________________________________

I do want my child to participate: __________________________ Date: __________

Parent/Guardian signature

I do not want my child to participate: ________________________ Date: __________

Parent/Guardian signature
APPENDIX J

STUDENT ASSENT FORM

March 19, 2018

Dear Lower Montessori Student,

This year I will be implementing an action research study I have developed through my graduate studies at the University of South Carolina. For my action research study, I have chosen to test the impact of mindfulness practices on third-grade students independent learning processes (autonomy in learning). During the research process I will use student surveys and journal entries that you complete, along with observations that your teacher and I will take to gather information about your learning behaviors and your perception (feelings) about your learning. These sources of data are important in helping both Ms. Mulberry and me in creating a learning environment that promotes autonomous learning for you. The information gathered will be used in my dissertation in practice, however your name will not be used in any way. Please read the following as I read it aloud and sign below.

Survey Content
The surveys, journal entries, and observations gather information on your autonomous learning behaviors, your perception of their learning behavior, and your attitude towards mindfulness practice as an instructional strategy.

Voluntary
Your participation in this study is 100% voluntary. In addition, to participate you do not have to take their survey or complete journal entries. You only have to answer questions you want to and that you feel comfortable answering. When completing surveys and journal entries you only have to provide the information they feel comfortable providing.

Anonymous and Confidential
No one will ever see the survey, journal entries, and observations collected. I will never use your name, so no one can be identified.

Benefit of the Study
The study will help teachers plan and/or learn more about how to design activities to improve your autonomous learning in class. This means your ability to complete classroom tasks with confidence without the teacher-participant directly instructing you.
Potential Risk
There is no known risk of physical, mental, or emotional harm to you. You will not have to answer any questions unless you want to.

Not Religious Practice
While mindfulness and yoga practices will be used in the classroom it is important to note that the practice that will be implemented in the school setting is not a religious practice and will not teach religious perspectives.

Survey Review
Beginning May 7, 2018, a copy off your survey will be available for previewing by contacting Mrs. E. Simone Mori in her office room 106 or emelyn.mori@richlandone.org.

For Further Information
Please call Mrs. E. Simone Mori in her office room 106 or email any questions or concerns to emelyn.mori@richlandone.org.

Sincerely,
Mrs. E. Simone Mori

I would like to participate: _____________________________ Date: _______________
Student signature

I do not want to participate: _____________________________ Date: _______________
Student signature
March 19, 2018

Dear Lower Teacher,

This year I will be implementing an action research study I have developed through my graduate studies at the University of South Carolina. For my action research study, I have chosen to test the impact of mindfulness practices on third-grade students independent learning processes (autonomy in learning). During the research process I will use student surveys and journal entries, along with observations that you and I will conduct to gather information about your students’ learning behaviors and students’ perception (feelings) about their learning. These sources of data are important in helping you and me in creating a learning environment that promotes autonomous learning for your students. The information gathered will be used in my dissertation in practice, however your name will not be used in any way. Please read the following as I read it aloud and sign below.

Survey Content
The surveys, journal entries, and observations gather information on your students’ autonomous learning behaviors, your students’ perception of their learning behavior, and your students’ attitude towards mindfulness practice as an instructional strategy.

Voluntary
Your participation in this study is 100% voluntary. In addition, you only have to answer questions you want to and that you feel comfortable answering. When completing surveys and journal entries you only have to provide the information they feel comfortable providing.

Anonymous and Confidential
No one will ever see the survey, journal entries, and observations collected. I will never use your name or any other participants’ name, so no one can be identified.

Benefit of the Study
The study will help you plan and/or learn more about how to design activities to improve your students’ autonomous learning in class. This means their ability to complete classroom tasks with confidence without you directly instructing them.
Potential Risk
There is no known risk of physical, mental, or emotional harm to you. You will not have to answer any questions unless you want to.

Not Religious Practice
While mindfulness and yoga practices will be used in the classroom it is important to note that the practice that will be implemented in the school setting is not a religious practice and will not teach religious perspectives.

Survey Review
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For Further Information
Please call Mrs. E. Simone Mori in her office room 106 or email any questions or concerns to emelyn.mori@richlandone.org.

Sincerely,
Mrs. E. Simone Mori

I would like to participate: __________________________ Date: _______________
Student signature

I do not want to participate: __________________________ Date: _______________
Student signature
March 19, 2018

Dear Lower Instructional Assistant,

This year I will be implementing an action research study I have developed through my graduate studies at the University of South Carolina. For my action research study, I have chosen to test the impact of mindfulness practices on third-grade students independent learning processes (autonomy in learning). During the research process I will use student surveys and journal entries that you complete, along with observations that the teacher and I will take to gather information about your learning behaviors and your perception (feelings) about student learning. These sources of data are important in helping the teacher and me in creating a learning environment that promotes autonomous learning for students. The information gathered will be used in my dissertation in practice, however your name will not be used in any way. Please read the following as I read it allowed and sign below.

Survey Content
The surveys, journal entries, and observations gather information on students’ autonomous learning behaviors, students’ perception of their learning behavior, and students’ attitude towards mindfulness practice as an instructional strategy.

Voluntary
Your participation in this study is 100% voluntary. In addition, during observational conversation you only have to answer questions you want to and that you feel comfortable answering.

Anonymous and Confidential
No one will ever see the survey, journal entries, and observations collected from students. Furthermore, I will never use your name or any other participant name, so no one can be identified.

Benefit of the Study
The study will help teachers plan and/or learn more about how to design activities to improve students’ autonomous learning in class. This means their ability to complete classroom tasks with confidence without the teacher-participant directly instructing them.
Potential Risk
There is no known risk of physical, mental, or emotional harm to you. You will not have to answer any questions unless you want to.

Not Religious Practice
While mindfulness and yoga practices will be used in the classroom it is important to note that the practice that will be implemented in the school setting is not a religious practice and will not teach religious perspectives.

Survey Review
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For Further Information
Please call Mrs. E. Simone Mori in her office room 106 or email any questions or concerns to emelyn.mori@richlandone.org.

Sincerely,
Mrs. E. Simone Mori

I would like to participate: _____________________________ Date: _______________
Instructional Assistant signature

I do not want to participate: _____________________________ Date: _______________
Instructional Assistant signature