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Movement and Mindfulness in the Transitional Kindergarten Classroom

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This thesis, written under the direction of the candidate's thesis advisor and approved by the program chair, has been presented to and accepted by the Department of Education in partial fulfillment of the requirements for the degree of Master of Science in Education.

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Movement and Mindfulness in the Transitional Kindergarten Classroom

by

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A culminating thesis submitted to the faculty of Dominican University of California in partial fulfillment of the requirements for the degree of Master of Science in Education

Dominican University of California

San Rafael, CA

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Abstract

This study aimed to assess the impact of mindfulness activities, yoga, and kinesthetic movement on students' self-reported mood, feelings of wellbeing, and levels of calmness and attention. Research suggests that meditation and mindfulness can help students regulate emotions and accordingly decrease levels of stress and increase feelings of wellbeing in the classroom (Dariotis, Mirabal-Beltran, Cluxton-Keller, 2016). Mindfulness has also been shown to increase executive functioning in young children. Kinesthetic movement, including yoga and repetitive movements, has also been shown to increase cognitive functioning in young children, especially in regards to executive functioning (Zeng, Ayyub, Sun, Wen, Xiang, & Gao, 2017).

This qualitative study was conducted with three classes of the first year of a new program for TK classroom students, who in this research, participated in a sequence of mindfulness and yoga activities over three weeks. Students reflected on their experiences in post-exercise drawings and focus groups. The classroom teachers also participated in interviews. The major findings identified that many students felt readier to learn and calmer after and during the mindfulness, movement, and drawing exercises. To exemplify this, students rate themselves as more calm on average through lower numbers on a scale of 1-5. More students drew themselves as being rainbow or "ready to go" after the activities. Students also found that after participating they had greater facility for identifying their emotions. Finally, many students showed improved peer relationships throughout the day following the experiences.

Movement and mindfulness practices can promote equity in young children by providing opportunities for all children to develop self-awareness, emotional regulation, and empathy. These practices can be particularly helpful for children from marginalized communities who may experience stress and trauma related to their experiences with systemic oppression. By engaging

in mindfulness and movement activities, children can learn to recognize and regulate their emotions, which can improve their overall well-being and reduce behavioral challenges.

Additionally, these practices can help children develop empathy for others and foster a sense of community and connection with their peers. By making these practices accessible and inclusive for all children, regardless of their background, school mindfulness and movement programs can help promote equity and support the healthy development of all children.

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Table of Contents

| | |
|---|------|
| Abstract | iii |
| Acknowledgements | v |
| List of Figures | viii |
| Chapter 1: Introduction | 1 |
| Statement of Purpose | 2 |
| Overview of the Research Design..... | 3 |
| Significance of the Study | 5 |
| Research Implication | 6 |
| Chapter 2: Literature Review | 7 |
| Kinesthetic Movement | 12 |
| The Mind and Body Connection..... | 15 |
| Conclusion | 19 |
| Chapter 3: Methods..... | 20 |
| Research Questions..... | 20 |
| Description and Rationale for Research Approach..... | 21 |
| Research Design..... | 21 |
| Chapter 4: Findings..... | 28 |
| “Rainbow and Ready to Learn”: Calmness and Readiness Improved | 29 |
| “Happy Like a Robot Pirate”: Emotion Identification and Regulation | 36 |
| “Everybody Should Play Whatever They Want”: Improved Peer Relationships | 40 |
| Conclusion | 41 |
| Chapter 5: Discussion | 43 |
| Implications for the Literature | 44 |
| Implications for Practice and Policy | 46 |
| Limitations of the Study and Future Research..... | 49 |
| Conclusion | 52 |

| | |
|---|----|
| References | 54 |
| Appendix A: IRB Approval Letter | 59 |
| Appendix B: Sample Post-Exercise Questions | 61 |
| Appendix C: Sample Final Post-Exercise Questions | 63 |
| Appendix D: Sample Individual Teacher Interview Questions | 65 |

List of Figures

| | |
|--|----|
| Figure 1 Elsie’s drawings before (L) and after (R) the movement and mindfulness activities during week three..... | 31 |
| Figure 2 Ether’s drawing after the movement and mindfulness activities during week one. | 32 |
| Figure 3 Ether’s drawing after the movement and mindfulness activities during week two. | 34 |
| Figure 4 Ether’s drawing after the movement and mindfulness activities during week three. | 35 |
| Figure 5 Jas’s drawings before (L) and after (R) the week two activities. | 39 |
| Figure 6 Hadla’s drawings before (L) and after (R) the movement and mindfulness activities during week three..... | 41 |

Chapter 1: Introduction

The hustle and bustle of everyday life can leave us feeling disconnected and overwhelmed. But for me, movement and mindfulness provide a much-needed refuge from the chaos of the world. There's something about moving my body, whether it's through yoga, dance, or simply going for a walk, that brings me back into the present moment and helps me tune out the distractions around me. And when I pair movement with mindfulness practices like meditation or breathwork, I feel like I'm tapping into a deeper, more meaningful aspect of my being. It's as if the act of moving my body creates space for me to explore my thoughts, emotions, and sensations with a greater sense of clarity and ease. Whether I'm feeling anxious, stressed, or just in need of a mental reset, movement and mindfulness provide me with a powerful toolset for navigating life's ups and downs.

It is important to research the impact that mindfulness has on cognition and behavior in primary school students because it can help provide students with the tools they need to succeed in their academic lives. Oftentimes, school settings demand a lot of time sitting and being sedentary when students need to be able to move around.

In a constantly evolving, technology-centered world, the time K-8 students spend on screens is drastically increasing, as the time they spend moving their bodies is decreasing. Research has found that as time on screen increases, physical activity tends to decrease (Christofaro, De Andrade, Mesas, Fernandes, & Farias Junior, 2016). In the same light, studies have also shown that establishing healthy physical activity habits are critical in young childhood so that they may be maintained through adulthood (Hesketh, Hinkley, & Campbell, 2012). This is critically important because attention issues and attention deficit disorder diagnoses have increased dramatically in the last twenty years. This affects teachers' ability to teach and

students' ability to learn. This study will explore the impact that exercise and mindfulness has on attention, motivation, and cognitive development and seek to explore how it can be successfully incorporated into the K-8 classroom to most effectively motivate students.

Statement of Purpose

A review of the literature revealed how mindfulness works to benefit students (Armstrong, 2019), as well as the positive impact of exercise (Summerford, 2009), and how stretching and yoga can effectively increase student perceived feelings of wellbeing and motivation (Dariotis, Mirabal-Beltran, Cluxton-Keller, 2016). As these studies have collectively contributed to the research in the field of examining how mindfulness and movement activities affect students in a classroom setting, this study will seek to examine the impacts of combined mindfulness, yoga, and movement activities and their impact on kindergarten students and transitional kindergarten students.

This research seeks to understand how students in transitional kindergarten respond to mindfulness, movement, and meditation. Hopefully, this project will illuminate the importance of exercise and mindfulness and show how it can impact the well-being of students. The frameworks of movement and mindfulness used together shed light on how students' experiences with these two components together can impact their mood and behavior at school. For example, mindfulness studies have shown that students who are engaged in mindfulness activities experience decreased levels of anxiety, stress, and depression, and experience increased attention, resiliency, creativity, compassion, and empathy (Alonzo, 2022).

To effectively educate the whole child, the impact that using the mind and body can have on improving student mood, attention, and behavior must first be examined. Some of the gaps in the literature include lack of research on intention-setting and lack of research on movement and

mindfulness in public school transitional kindergarten. This is the first year there has been opportunity for research in transitional kindergarten since it has expanded in California to become a universal program in public schools. According to the California Department of Education (CDE) website, starting in the 2022-2023 school year, the CDE and the State Superintendent of Public Instruction now fully support the Universal PreKindergarten (UPK) and Transitional Kindergarten (TK) program (California Department of Education, 2023). This study seeks to show the connection between movement and mindfulness in TK and its effect on attention, mood, executive functioning, ability to self-soothe, and ability to identify and regulate emotions.

Overview of the Research Design

The research engaged in longitudinal qualitative data collection using a phenomenological approach and from a pragmatic worldview. The researcher utilized a qualitative approach to assess how using mindfulness practices and physical activity can improve overall student performance, wellbeing, and mood. The research was conducted at Ednis Elementary School in Northern California. It includes a predominantly white population with primarily affluent families. The student body is composed of 8% English Language Learner (ELL) students and has an Ethnic Diversity Index of 30 (CA Department of Education). Student data was collected from three transitional kindergarten classes of approximately twenty-two students each, at the school where the researcher substitute teaches. The student and education professional names referred to in this thesis are pseudonyms. Participants in this study, besides the four education professionals interviewed, were all minors, aged four to six.

The first research question this study sought to address was “How does adding movement, mindfulness, and yoga impact behavior in the transitional kindergarten classroom?” The second

research question was “What are student perspectives on movement and mindfulness interventions as it relates to learning experience?” The third research question this study sought to answer was “How do students feel before and after doing fifteen minutes of movement and mindfulness?”

In each class, the researcher recorded results using analytic memos of what students said, asked the class questions before and at the end of each session, and had the students draw pictures about how they felt prior to and following the intervention. Participants participated in two activities per week. During the first activity, the students participated in documented movement and mindfulness activities. They drew a picture of how they felt and were interviewed before and after the activity.

At the beginning of each day, the researcher introduced the project and gave the students a brief overview of what they would be doing. They were informed that participation was optional and the students could participate in what they felt comfortable doing. The students would first be put into their regular table groups and be given a handout of a body to draw how they feel today. Students would write their names or have help writing their names on the back of their paper. As the students drew, the researcher circulated around the room and asked each student to rank how they felt on a Likert scale of 1-5, 1 being very calm and 5 being very energetic. Feeling very energetic was explained to students as feeling like they had “so much energy they could run around the room.” The students were also asked “How do you feel today?” When they were done drawing, they were called to sit on the rug. There they did a five-minute mindfulness activity, including setting an intention, repeating mantras, deep breathing, and a guided meditation. After the meditation, students participated in five minutes of guided yoga and movement activities. After the activities, students were called in groups to return back to their

tables where there were new body outlines for them to draw another picture of how they felt. Again, students were asked how calm they felt on a scale of 1-5 and how they felt in general. Students wrote their names or had help writing their names on the back of their paper. During this time, the researcher interviewed students about how they were feeling. Later on, students in each class participated in more in-depth one-on-one interviews with the researcher.

Significance of the Study

Incorporating movement and mindfulness practices into the daily routine of young children, especially through a concrete educational policy, can promote equity in several ways. First, it provides all children with an opportunity to engage in activities that support their physical and emotional well-being, regardless of their background or abilities. These practices also help children develop important self-regulation skills, which can support their academic and social success, regardless of their starting point. Additionally, these practices can help create a more inclusive classroom environment, where all children feel valued and supported in their unique needs and experiences. By promoting equity in these ways, movement and mindfulness practices can contribute to a more just and equitable society for all children.

Teaching movement and mindfulness can support social justice by providing all individuals with access to tools and practices that support their physical and emotional well-being. By promoting these practices, educators and advocates can help reduce systemic barriers that prevent certain groups of individuals from accessing resources and opportunities that promote health and wellness. Additionally, teaching movement and mindfulness can help individuals develop important self-awareness and self-regulation skills, which can support their ability to engage in social justice efforts and make positive contributions to their communities. By fostering a culture of well-being and mindfulness, individuals are better equipped to

recognize and respond to social injustice, and to advocate for equitable systems and policies that benefit everyone. Ultimately, teaching movement and mindfulness can support a more just and equitable society by empowering individuals to cultivate the internal resources they need to lead fulfilling, healthy, and socially engaged lives.

Research Implication

These findings support the need for movement and mindfulness opportunities in the classroom to help support young students socially and emotionally. This study shows the importance of students having equitable access to mindfulness and movement activities in the classroom. Not all students and teachers have access to these practices due to budget restrictions and lack of extra funding from families in high-income districts. The affluent district this study was conducted in has enough funding to fund a garden, music, art, and dance program. Not all districts have such funding, so opportunities for these practices in all classrooms are important. For teachers looking to provide extra support to their young transitional kindergarten students, meditation, yoga, and movement are a highly effective and inexpensive way to support students. Administrators can support the implementation of such activities by creating policies and supporting training to support teachers in providing these opportunities to their students. School districts could benefit from implementing a mindfulness and meditation program to support students' social and emotional development and help them succeed academically.

Chapter 2: Literature Review

The goal of this literature review is to understand and explore the ways in which movement and mindfulness activities can help boost student's moods, calm them down, increase feelings of wellbeing, and improve attention. This is particularly important in transitional kindergarten, where opportunities to move are needed to help support these students. Often, children are expected to sit still for extended periods of time in school and commanded to focus without being given the tools necessary to show them how to do so (Hulme, 2017).

This review specifically examines mindfulness and kinesthetic movement and the impact these practices have on transitional kindergarteners in a public school setting. Mindfulness has been shown to increase executive functioning (Kaufman, 2010) and emotion regulation skills that promote academic achievement in young children (Zelazo, Forston, Masten, & Carlson, 2018). Additionally, kinesthetic movement, including various forms of physical activity like repetitive movements, yoga, and dance, have been shown to increase cognitive functioning and development in young children (Zeng, Ayyub, Sun, Wen, Xiang, & Gao, 2017). The literature also takes a look at the connection between the mind and body and how nurturing both can lead to improved social and academic performance as well as increased mood and wellbeing in students (Khan & Hillman, 2014).

Mindfulness: History and Application

Historical Framework of Meditation

Meditation has been practiced in various forms across cultures and religions for over 5,000 years. The earliest documented evidence of meditation can be found in the Vedas, a collection of sacred texts from ancient India. The Vedas describe various meditation practices, including yoga, which is still widely practiced in India today (Wernicke-Olesen, 2021).

Meditation dates back historically to being practiced in many different contexts throughout the world. In ancient Greece, meditation was practiced by the philosopher Pythagoras and his followers at his school, who used it to achieve a state of inner harmony and tranquility (Travis & Shear, 2010). Buddhism, which originated in ancient India, is one of the most well-known religions associated with meditation. The Buddha is believed to have achieved enlightenment through meditation, and he taught his followers various meditation techniques as a path to enlightenment (Wernicke-Olesen, 2021). Buddhist meditation practices include mindfulness meditation, which involves focusing on the present moment and observing thoughts and emotions without judgment. Another practice is loving-kindness meditation, which involves cultivating feelings of love and compassion towards oneself and others (Wynne, 2007).

In Taoism, meditation is seen as a way to cultivate internal energy and achieve balance and harmony with nature. Taoist meditation practices include breathing exercises, visualization techniques, and physical movements such as Tai Chi and Qi Gong (Cleary, 2000). Christianity also has a long history of meditation, with practices such as contemplative prayer dating back to the early Church. Contemplative prayer involves silently meditating on a biblical passage or sacred word, with the aim of deepening one's relationship with God (Travis & Shear, 2010). Meditation has become increasingly popular in the modern era, with many people using it as a way to reduce stress, improve focus, and promote overall well-being. In the 20th century, various meditation techniques, such as Transcendental Meditation and Vipassana meditation, gained popularity in many countries (Wynne, 2007). Today, meditation is widely practiced across cultures and religions, and there are many different forms of meditation available. These include guided meditations, mindfulness apps, and group meditation classes. The history of meditation spans thousands of years and encompasses a wide range of cultures and religions.

Mindfulness Practices in Early Childhood

Early childhood, defined as the years spanning from the ages 2-6, is a period marked by the critically important time in which children develop self-regulation and social emotional skills that help them succeed in school. Thus, mindfulness activities can help support young students in developing these skills that can help promote academic achievement (Zelazo & Lyons, 2012). Furthermore, mindfulness activities can help support the development of executive functioning skills, which include the ability to adapt thinking, plan, self-monitor, use self-control, sharpen working memory, manage time, and organize. In turn, students who exhibit high executive functioning have been shown to have increased academic and social success (Kaufman, 2010). Studies have shown that implementing mindfulness activities in the early childhood classroom increases executive functioning skills in the context of students performing goal directed tasks (Zelazo, Forston, Masten, & Carlson, 2018). The findings in this study imply that the mindfulness activities performed before the students were asked to execute tasks helped them calm down and engage in self-regulation, goal-setting, and other abilities related to executive functioning. This shows that mindfulness can increase executive functioning in early childhood when used in the classroom and help support student's academic success.

Mindfulness as a Tool

Mindfulness, defined as bringing acceptance and awareness into the present moment, can benefit all children by decreasing anxiety and stress (Hooker & Fodor, 2008). Our brains develop continuously throughout life, but they develop at a much faster rate during early childhood. This is especially true of the prefrontal cortex, an area of the brain responsible for planning, decision-making, and regulating social behavior (Kolk & Rakic, 2022). The prefrontal cortex develops at its fastest rate during early childhood. Since mindfulness advances these crucial skills that are

controlled by the prefrontal cortex, this practice can therefore increase abilities that promote social and academic performance by helping students calm anxiety and assist them in controlling their behavior and regulating their emotions (Gelles, 2020). Perry-Parrish, Copeland-Linder, Webb, and Sibinga (2016) studied elementary school students at an urban school who received fifteen-minute mindfulness interventions five times per week for five weeks and found that the group that received this intervention showed increased teacher-ratings for attention, self-control, participation, and respect for others.

Hulme (2017) asserts that children are often commanded to focus in school, but not told how. Thus, teaching mindfulness provides students with the tools needed to concentrate and stay present. Furthermore, Hulme defines mindfulness as the ability to respond thoughtfully to what is happening in the present moment. Over ten weeks, the MiSP course served as an intervention, educating students and teachers on mindfulness and what is going on inside of their bodies when they are stressed. During this study, one student found himself getting aggravated in class and clenching his fists. Immediately, he identified aloud that his amygdala was being triggered, thus putting him into the fight-or-flight response. By being able to recognize this, the boy was able to calm himself down. Hulme (2017) noted how this mindfulness course had a positive impact on the teachers and students who participated in it, in that the teachers were better able to react with patience and calmness and the students were better able to focus and identify why they might be finding it difficult to concentrate on certain occasions (Hulme, 2017).

Mindfulness Techniques

One established mindfulness technique is Mindfulness-Based Cognitive Therapy for Children (MBCT-C). This approach involves group therapy that engages children in sensory-based practices, seated breath meditations, mindful movement activities, body scans,

visualization practices, and drawing or writing. This has been proven to be effective in reducing anxiety and treating depression in children (Semple & Lee, 2014). Another technique not included in MBCT-C is meditation. Fontana & Slack (1997) described meditation as “a very special kind of sitting quietly doing nothing, in which the mind is held clear and still, alert and watchful, and free from losing itself in thinking” (p. 5) In other words, children sit still and focus on breathing and paying attention to their bodies. Fisher (2006) defined several different types of meditation. First, receptive meditation involves focusing one’s mind on an object to promote calmness and stillness. Second, generative meditation is when attention is focused and guided, such as in a guided meditation or visualization. Third, reflective meditation involves an open reflection on a particular stimulus, such as a question, thought, or image. There appears, however, to be a gap in the literature regarding the practice of setting an intention before a meditation and combining all three of these forms of meditation into a simplified, five-minute practice for young children.

Combining Mindfulness with Yoga

Studies have shown that using mindfulness in conjunction with yoga has many positive effects on cognitive function and emotional regulation. Dariotis, Mirabal-Beltran, Cluxton-Keller, Gould, Greenberg, and Mendelson (2016) evaluated the effectiveness of a sixteen-week mindfulness and yoga intervention on increasing emotional regulation and decreasing stress on fifth and sixth grade students in several inner-city schools. This study was founded on the theory that mindfulness skills teach students to be present and that emotion regulation skills, like breathing and yoga, could help students cope with stressors. In turn, mitigating these stressors was hypothesized to have a positive impact on attention, brain development, and learning capabilities. In the intervention, the sixteen-week curriculum taught breathing techniques, yoga

poses, and mindfulness practices. During the focus groups and interviews at the end of the study, students were able to recall specific techniques they learned and identify when to use them. Additionally, students self-reported feeling a high capacity to employ emotion regulation techniques when they started feeling stressed. In turn, teachers in the classrooms reported lower levels of disruptive behavior and higher amounts of perceived student wellbeing.

Kinesthetic Movement

The use of kinesthetic movement is critical in early childhood because the development of gross motor movement in this stage can affect other areas of development as well. For example, gross motor development is best acquired with language skills, and the use of gross motor skills helps with developing other important skills involving executive function (Sadaruddin, Hajerah, Amri, & Mariyani, 2022). Kinesthetic intelligence, also known as physical intelligence, is a type of intelligence in which an individual is able to use their body to perform movements including running, dancing, building, stretching, or any other gross motor movement. Children who have this ability are able to use parts of their body to solve problems (Tanjung & Novitri, 2022). As such, kinesthetic movement not only supports the development of gross motor skills, but also cognitive development and executive functioning.

Braniff (2011) conducted an action research study examining the effects of having an active classroom on a class of fourth grade students. It was found that incorporating activity during the day had a positive impact on increasing student focus, concentration, alertness, and wellbeing. An “active classroom” was defined as a classroom where students have opportunities to move, collaborate with one another, and participate in a range of different activities. Summerford (2009) discussed using movement in the classroom to help students focus better and help prepare their brains for learning and outlines the science behind how movement helps

learning, including by increasing production of dopamine and firing of neurons. It also discusses how the process of having movement tied into learning promotes the process of neurogenesis, when the brain creates new neurons and neural pathways. This happens when students experience new things.

Physical Activity and its Effect on Cognitive Development in Early Childhood

Studies have found that physical activity in early childhood promotes not only physical development in young children, but cognitive development as well (Semple & Lee, 2014). For instance, it has been found that a physical activity intervention performed on children aged 2-6 increased language learning, academic achievement, attention, and working memory (Zeng, Ayyub, Sun, Wen, Xiang, & Gao, 2017). The beneficial effects exercise has on cognitive function was also shown through using a two-week crossover design trial with 552 randomly selected children aged 8-12 by school into two groups. In this case, cognitive tests results from the group who exercised showed significant improvement in cognition as compared to the control group that did not exercise (Meijer, Königs, Pouwels, Smith, Visscher, Bosker, Hartman, & Oosterlaan, 2022). Although limited, this also shows that exercise can have a positive impact on cognition in as little as one week.

Dance

Dance as movement is widespread across many countries and cultures and has physical, social, emotional, and cognitive benefits. Capello (2008) discussed the widespread use of dance as movement therapy for children in many countries throughout the world, including Israel, Spain, Canada, Germany, Japan, Korea, Greece, Argentina, France, Finland, Egypt, Sierra Leone, India, Norway, and Haiti. Not only does it help support children with a wide range of disabilities, but it also serves as an outlet for students to celebrate their culture and identity.

Dance and movement therapy in these countries have been found to promote health, feelings of belonging, and recovery for students with disabilities when used in a way that caters to their individual needs (Zeng, et al., 2017). In one particular case, Tortora (2009) successfully started a dance therapy movement for children in New York City and found using dance as a therapeutic tool and a method of nonverbal communication.

Faber (2017) notes how dance can produce the *Isadora Effect*, defined as the role that motor development plays in brain development and acquiring symbolic meaning among young children as a result from practicing movement. Anecdotal evidence has shown that dance education and the use of symbolic movement early on drastically increase cognitive development in the early childhood years (Faber, 2017).

Using Music with Movement

Two music interventions were conducted at primary schools in Hungary: one that included physical movement, and one that did not (Lukács, Asztalos, Maróti, Farnadi, Deszpot, Szirányi, Nemes, & Honbolygó, 2022). This study was a longitudinal study spanning a year and a half that showed a significant difference between the group of students who received the music and movement intervention as measured by verbal IQ, nonverbal IQ, and verbal fluency. Reading fluency, in particular, was vastly improved in the movement group. After the interventions, the children who participated in music with movement were found to have increased phonemic awareness, ability to discriminate between different melodies in music, and higher verbal IQs. This suggests that movement can have a positive impact on cognitive development and early literacy (Lukác et al., 2022). This article shows how movement, especially when combined with music as in dance, can have a profound effect on a student's cognitive abilities.

Yoga

A study by Özgün, Özkul, Oral, and Şemin (2021) was conducted on 28 children ages 4-5 in which half the students were split into a control group, and the other half was split into the experimental group. In the study, the experimental group received one hour per week of yoga from a certified yoga instructor while the control group did not receive any yoga training. The research findings found that those who received the yoga training had posttest Tasks Subsection Scores that were significantly higher than that same group's pretest scores. No significant difference was found between the pretest and posttest scores of the control group (Özgün, Özkul, Oral, & Şemin, 2021). These findings indicate that yoga training in early childhood can increase academic success and ability to focus on tasks.

The Mind and Body Connection

Most of the research examining the connection between physical fitness and cognitive functioning in young children supports the assertion that physical activity improves children's executive functioning skills. Evidence from research has shown that physical activity supports complex cognitive processes during laboratory tasks (Khan & Hillman, 2014). Becker, McClelland, Loprinzi, and Trost (2014) assessed whether active play during recess was associated with self-regulation and academic achievement in a preschool sample. In total, 51 students were given assessments on self-regulation, academic achievement, and active play. Analyses showed that increased active play was associated with the students displaying better self-regulation and higher scores on early reading and math assessments (Becker, McClelland, Loprinzi, & Trost, 2014).

Cognitive Development in Early Childhood

In early childhood, specifically between the ages of 2-7, cognitive development occurs at its most rapid pace (Zelazo & Lyons, 2012). In one of the domains of development, executive function, children should increase their ability to regulate their attention, thoughts, actions, and emotions (Zeng, Ayyub, Sun, Wen, Xiang, & Gao, 2017). This has been proven by data from systematic and meta-analytical reviews, which show that increased amounts of physical activity improve cognitive functioning and academic achievement in young children (Carson, Hunter, Kuzik, Wiebe, Spence, Friedman, & Hinkley, 2016). Another area of the brain that has been studied in its relation to movement is Broca's area, an area responsible for language, which is developing rapidly during early childhood. This area is strengthened by movement, especially movement accompanied with language or song (Webster et al., 2017). Carson et al. (2016) also note that more research is needed about how much and which patterns of physical activity affect cognitive development in early childhood.

Awareness and Focus in Early Childhood

Exercise, kinesthetic movement, and mindfulness can help students develop bodily awareness, which in turn can help them focus in the classroom (Khan & Hillman, 2014). Movement and mindfulness have also been shown to support embodied cognition, which is defined as when a student's body is actively involved in a specific learning experience (McClelland, Pitt, & Stein, 2015). According to McClelland et al. (2015), the brain and body are linked in an "embodied cognition model," in which physical movement benefits learning because they train various areas of the brain that are involved in gross motor movements as well as cognitive function. Mahar (2011) studied how well elementary students could concentrate on a variety of tasks. One group was asked to do the tasks after a "brain break" including various

movement activities. The other group, the control group, was asked to do the tasks without a brain break. The results showed that the group that received the brain break including physical activity showed a better ability to focus on the task than the students in the control group as measured by behavior observations.

Physical Activity and Brain Network Modality

Brain network modality can be defined as networked activity that occurs in separate regions of the brain. Chaddock-Heyman, Weng, Kienzler, Weissappel, Drollette, Raine, and Kramer (2020) found that higher brain network modularity was connected with improvements in cognitive and academic performance in children involved in a physical activity intervention. For children involved in the after-school physical activity intervention, higher modularity of brain networks at baseline predicted greater improvements in cognitive performance for tasks of executive function, cognitive efficiency, and mathematics achievement (Chaddock-Heyman, Weng, Kienzler, Weissappel, Drollette, Raine, & Kramer, 2020).

The Impact of Physical Exercise on Cognitive Function

It is already known that physical exercise has numerous benefits on children physically, including increased fitness, functioning of the cardiovascular system and metabolism, and bone health (Khan & Hillman, 2014). However, Khan and Hillman (2014) also bring up the fact that teachers and school administrators are often concerned primarily with academic achievement. Webster, Zarrett, Cook, Egan, Nesbitt, and Weaver (2017) found that teacher ability and willingness to employ Movement Integration (MI) into their 1st-3rd grade classrooms was lacking. Several teachers stated that they perceived time constraints and curriculum coverage as barriers in the way of regularly integrating movement into the classroom. This was particularly a challenge when teachers perceived student achievement as lacking and felt that movement would

take away from time covering the standards that students needed to learn that year (Webster, Zarrett, Cook, Egan, Nesbitt, & Weaver, 2017). Thus, the findings in this study tie in with the assertion by Khan and Hillman (2014) that if more research would show how exercise improves cognitive functioning, then teachers and administrators would be more likely to prioritize incorporating physical activity into the work day.

The Effects of Exercise on White Matter Microstructure

Not all findings show that exercise supports cognitive functioning, which is one of the reasons this study will seek to further understand how movement and mindfulness affects students cognitive functioning and social emotional regulation. In a study out of the Netherlands, Meijer, Königs, Pouwels, Smith, Visscher, Bosker, Hartman, and Oosterlaan (2022) conducted a fourteen-week exercise intervention with 93 elementary school students. Four physical education lessons were held each week, and focused on either aerobic or cognitively demanding exercise. This group was compared with a control group that followed the standard physical education program of two lessons each week. To assess the data, white matter microstructure was examined using diffusion tensor imaging used with tract-based spatial statistics. The results showed that the group who was given the exercise intervention showed no difference in brain structure or function. It is important to note that simply measuring white brain matter does not give a comprehensive picture of the effects of exercise on cognitive and social function. Although the study found that exercise has no impact on brain structure and function, this was measured using one metric and there are many other benefits exercise provides that were not measured in this study (Meijer, Königs, Pouwels, Smith, Visscher, Bosker, Hartman, & Oosterlaan, 2022).

Conclusion

The literature highlighted many of the benefits and emerging research that shows a connection between mindfulness and movement and increased student cognitive functioning and social emotional regulation. However, in order to achieve this benefit for the students, teachers must learn and incorporate these practices into their daily classroom routines. Summerford (2009) discusses using movement in the classroom to help students focus better and help prepare their brains for learning. Hooker and Fodor (2008) defined mindfulness as bringing acceptance and awareness into the present moment, and document how it can benefit all children by decreasing anxiety and stress. More research is needed regarding the combined benefits that mindfulness and physical movement have on student motivation, attention, emotion regulation, and mood. Additional research is also needed regarding the impact setting an intention before a meditation has on student behavior later on in the day. As transitional kindergarten is newly established in California public schools, further examining the effect that mindfulness and physical activity has on young children could benefit the future of their education. The mindfulness and movement activities conducted in the study use the current research on the benefits of both mindfulness and movement and apply it in a transitional kindergarten setting within the public school system.

Chapter 3: Methods

Many research studies have shown the effects that mindfulness activities and physical exercise can have on increasing the well-being, concentration, attention, and executive functioning of young elementary school children. The benefits of using mindfulness in the classroom support their rapidly developing and crucial executive functioning skills, which include the ability to make decisions, regulate emotions, and direct attention (Kaufman, 2010). Additionally, mindfulness has been shown to reduce cortisol levels, therefore making students feel less stressed and better able to focus (Hooker & Fodor, 2008). There has also been research that shows several ways in which exercise increases cognitive function and ability to focus on tasks in young children (Zeng, et al., 2017), as well as a connection between increased cognitive, social, and emotional functioning as a result from mindfulness and physical activity. This study addressed a gap in the literature regarding the practice of setting an intention before a meditation and combining all three of these forms of meditation into a simplified, five-minute practice for young children. There is limited research about how these things combined can benefit students, intention-setting, and more information from the student's perspective. Therefore, more data is required regarding the combined impact of mindfulness practices and physical activity, and how the students feel about this.

Research Questions

The focus of the research was based on the following questions:

1. How does adding movement, mindfulness, and yoga impact behavior in the transitional kindergarten classroom?
2. What are student perspectives on movement and mindfulness interventions as it relates to learning experience?

3. How do students feel before and after doing fifteen minutes of movement and mindfulness?

Description and Rationale for Research Approach

This study utilized a qualitative research design from a phenomenological approach and with a constructivist worldview. Creswell and Creswell (2018) state that the constructivist worldview aims to gather as much as possible from the participant-perspective by using open-ended questions and extracting subjective meaning. This study used a qualitative approach through asking teachers and students open-ended interview questions, asking students to rank their calmness before and after activities on a scale of 1-5, students drawing and describing their mood before and after the experiences, and observations of student behavior. According to Creswell and Creswell (2018), qualitative research is driven by participant's views of the focus of the study. The goal of using qualitative research was to elicit the research participants' own meaning of the experience. More specifically, the use of qualitative research was aimed at allowing students to explain how they were feeling and how much energy they had to not only examine this but also discover if their ability to identify, label, and regulate emotions increased over the course of them participating in the movement and mindfulness activities. Furthermore, allowing students to draw how they were feeling as qualitative data allowed for an open-ended medium to examine whether there were any themes or trends in the student participant's drawings.

Research Design

This study aimed to understand how using mindfulness practices and various forms of movement including dance and yoga can improve the overall wellbeing, behavior, focus, and emotion regulation of transitional kindergarten students. This study also sought to understand

how transitional kindergarten students are impacted by a series of activities being added to the day that include movement and mindfulness.

Research Site and Entry into the Field

The students in this study all attended Ednis Elementary School located in Northern California (to protect the identity of research participants, pseudonyms have been used for the research site and for participants themselves). Ednis Elementary School is where the researcher frequently substitute teaches so she has a working relationship with all of the participants involved in the study.

Ednis Elementary School is located in an affluent suburban neighborhood. According to the California Department of Education's DataQuest website, the student demographic data for Ednis Elementary School for the 2021-2022 school year included a total enrollment of 589 students. The majority of the school was white, consisting of 75% white students, 11% Asian students, 5% Hispanic students, 8% of students being two or more races, and <1% of students identifying as American Indian, Alaska Native, African American, or Pacific Islander.

Participants and Sampling Procedure

Three transitional kindergarten classes of approximately twenty-two students per class at Ednis Elementary School in Northern California were invited to participate in an experiential research exploration. During the 2022-2023 school year, Ednis Elementary School was the only school in the district that provided transitional kindergarten (TK), which is new in the year of this research, so the students in TK came from various parts of the school district and would be expected to matriculate into several different schools. Most of the students in this study were white, with 55 white students, five Asian students, two Hispanic students, one Indian student, and one African American student.

In addition, six educational professionals at the site were invited to participate in individual interviews in the study. Specifically, the teachers and aides in each of the three classes were asked to participate in the study. All six educational professionals involved in this study identified as white females. Two TK teachers are in their late 20s and the third in her early 40s. Two TK aides were in their early 30s, with one in her late 40s. They are all experienced teachers who have taught for at least two years.

Methods

As part of regular classroom participation, all students in both classes were invited to participate in the designed mindfulness and movement intervention, but only students who had signed proxy consent forms on file had their participation documented and included in the research data.

During the first visit, the researcher introduced the project and gave the students a brief overview of what they would be doing. They were informed that participation is optional and that the students can participate in what they feel comfortable doing, and to skip things with which they did not feel comfortable. Next, the students were invited to draw how they were feeling. Papers with body cut-outs were at each seat and students were called by row on the carpet to get up and choose a seat to start drawing how they felt on the handout of a body. Students wrote their names or had help writing their names on the back of their paper. While students drew, the researcher went around and asked each student how they felt and how calm they were feeling. '1' correlated to feeling very calm and '5' to so much energy that they could run around the room. Next, students were invited to sit or lay down on the rug, set an intention altogether, repeat affirmations, then follow a guided meditation. After the meditation, students participated in yoga and slow movement activities. Following this practice, students were asked

to draw how they felt using the same outline from the baseline drawing activity. The researcher later interviewed several students in the class (See Appendix B for Sample Post-Exercise Questions).

During the second visit, students started off in the same way with drawing and describing how they felt, followed by a Likert scale ranking. Next, the students were invited to sit or lay down on the rug, set an intention altogether, repeat new affirmations, and then participate in a guided meditation. After the meditation, students were engaged in simple yoga and slow movement activities. Following this practice, students were asked to draw how they felt using the same outline from the baseline drawing activity. The researcher later interviewed several students in the class (See Appendix B for Sample Post-Exercise Questions).

During the third visit, students again drew and reported how they felt and how calm they were. Afterwards, they were invited to sit down on the rug, set an intention, repeat slightly different mantras, then do a guided five-minute meditation. After the meditation, students participated in five minutes of yoga and slow movement activities. Following this practice, students were asked to draw how they felt using the same outline from the baseline drawing activity. After drawing, students were invited to share their drawing, and asked if they noticed any differences between the previous day and this day (See Appendices D and E again). The researcher later interviewed several students in the class (See Appendix B for Sample Post-Exercise Questions).

Following each session, students with signed proxy consent forms from each class were asked later on in the afternoon if they would like to answer some final interview questions (See Appendix C for sample final post-exercise interview questions). All interviews were audio recorded on the researcher's cell phone which is password protected. Notes were taken during

the interviews. Written information did not include any names of identifying information (e.g., addresses, phone numbers, personal references).

The educational professionals were interviewed after the series of activities with their classes, and these interviews lasted about 20-30 minutes (See Appendix D for sample interview questions). All interviews were audio recorded on the researcher's cell phone. Notes were taken during the interview.

Data Analysis

Data was collected through qualitative reflections, open-ended interviews with educational professionals, open-ended questions in student interviews, drawings from students, 1-5 Likert scale rankings of how calm they felt, and student's self-reported mood before and after the activities. All of the interviews were recorded on the researcher's cell phone and later transcribed. Immediately after the interviews, the researcher wrote analytic memos to identify potential bias, trends, patterns, and ideas (Maxwell, 2013). By creating analytic memos after the interviews, the data was better able to be organized and examined for similarities and differences.

Interviews were coded by hand and categories of data were created (Maxwell, 2013). Using this categorized data, a concept map was created to show trends in participants' experiences with the mindfulness and movement activities. From the concept map, data was organized into an Excel spreadsheet to show patterns in the data set.

Additionally, the researcher observed students and took notes on common themes she noticed regarding their ability to identify and regulate emotions, engage with their peers, communicate, and other general behavior notes. While analyzing this data, the researcher searched for similarities and trends to come up with themes.

Validity

The researcher is a substitute teacher who has taught and interacted with all three classes in the study on numerous occasions since the beginning of the school year. Since the researcher does have a relationship with the students, personal biases may be present. Additionally, the researcher already held a professional working relationship with the students, staff, and administrators at the school. The substitute teacher will take over one of the transitional kindergarten classes in this study for a teacher going on maternity leave after the study has ended.

The researcher was drawn to this study because she has experience working with this age group and enjoys doing yoga and meditation in her own spare time, especially to prepare herself for working in the classroom all day. Additionally, the researcher has done yoga and mindfulness with the preschool and Kindergarten age group before and has found that students enjoy it and benefit from it.

To counteract this, the researcher has implemented several strategies for improved validity. Long-term involvement included the researcher building a strong relationship with the rest of the transitional kindergarten team at this school. This strong relationship the researcher formed with her colleagues allowed for more in-depth research findings, rich data, and a higher degree of validity in the study (Creswell & Creswell, 2018).

Triangulation in research means using multiple data sets, methods, theories, and investigations to address a research question to help enhance the validity and credibility of the findings (Creswell & Creswell, 2018). In this study, triangulation was used through student interviews, teacher interviews, behavior observations, and students reporting their mood and how calm they felt. All

these methods were used to collect data and increase the validity of the study from drawing on multiple data sets.

Respondent validation was used by the researcher going over the data findings with the TK team and presenting the findings to them and asking for feedback. This helped increase validity of the findings and check for accuracy (Maxwell, 2013). The teachers were also asked for their opinions on how the students seemed to be responding to the study and any observations they had. Discrepant evidence is evidence that is in disagreement with the main findings in a study (Creswell & Crewell, 2018). There was discrepant evidence in the study as results varied from student to student.

Chapter 4: Findings

The methods of this study started with the researcher going into each classroom on each of the three weeks of the study. Students would gather on the carpet while the researcher provided a brief overview of what they would be doing that day. Then students would draw how they were feeling on body cutouts. As the students drew, the researcher circulated around and asked students to rank how they felt on a Likert scale of 1-5, 1 being very calm and 5 being full of energy. The researcher also asked each student participant how they were feeling. Next, the students came to the carpet for five minutes of mindfulness activities and five minutes of yoga and slow movement activities. After this, they were once again invited to draw how they felt on a new body cutout. Again, the researcher circulated around the room and asked each student how they felt and to report how calm they felt on a 1-5 Likert scale.

The goal of this study was to examine how incorporating mindfulness and movement into the transitional kindergarten classroom impacts attention, emotion regulation, executive function, mood, and calmness. The first theme revealed in the research was that students' self-reported calmness and readiness to learn tended to increase after participating in the mindfulness and movement activities in this study. This was reflected in one student's comment that he was "rainbow and ready to learn." Secondly, students seemed better able to identify their emotions after participating in mindfulness and movement activities. Often students were initially able to explain that they had a lot of energy and felt like running around, but after activities that helped them center themselves, they had greater clarity and more to say about how they were feeling. One student creatively described their state, after the exercise, as "happy like a robot pirate." Finally, the third finding showed that many students showed an improvement in peer relations throughout the study.

These findings showed improvements in mood, behavior, and readiness to learn in the three transitional kindergarten classrooms within an affluent school district. With these findings, equity should be considered as this is already a school with access to many resources and the students in this study were already familiar with yoga, movement, and mindfulness being used in the classroom.

“Rainbow and Ready to Learn”: Calmness and Readiness Improved

The first theme that appeared consistently in the study finding was that students’ self-reported calmness and readiness to learn tended to increase after participating in the mindfulness and movement activities in this study. In part, this was measured by students’ Likert scale ranking both before and after activities. In general, students tended to report lower (calmer) scores after participating in the activities. Additionally, students’ self-reported mood was more conducive to learning after participating in the movement and mindfulness activities. For example, students used terms like “rainbow and ready to learn,” “happy,” “calm,” and “relaxed” after participating in the activities. Two students tended to draw rainbow pictures after engaging in the activities and described themselves as “rainbow and ready to learn.” This was notable because these two students used to struggle with emotion regulation at school, and they seemed to enjoy the study and showed a significant increase in school engagement during and after the second two weeks of the study. Most students showed improvement in mood and engagement after participating in the mindfulness and movement activities, and several of the most significant improvements will be discussed in this section.

There were several patterns evident through the changes in the drawings before and after participating in the study. First, many students used warmer shades and a wider variety of different colors after participating in the activities. In general, warmer and more varied colors

tended to match with student self-reported feelings like “happy,” “excited, ” and “ready to learn.” In contrast, cooler colors tended to be paired with feelings like “sad” and explanations like missing a family member or not getting to play with someone (The exception to this was red, which tended to be paired with feeling “mad”).

Elsie is a student who is typically shy, reserved, and quiet around adults, but who will talk when things interest her, like engaging in imaginary play with her friends. During the third week of this project, Elsie drew her first picture using a lot of purple and blue. She seemed down and had her head lowered towards her hands on her desk during the first round of drawing. She described herself as feeling, “1- being very calm” and her mood as being, “sad.” She did not care to elaborate further about why she was feeling sad. We then proceeded to do a guided affirmation where the students participated in call and response mantra and breathing, where we said “I am calm, I am relaxed, I am thankful, I am safe, let it go.” Then they lay down, took three deep breaths, and allowed different body parts to relax and melt into the carpet. The students were asked to picture a place where they feel calm and happy. At the end, they breathed in love and breathed it out to all of those around them then gave themselves a hug and a “thank you.” After this mindfulness sequence, we did five minutes of calming yoga built around child’s pose, baby cobra, tree pose, rag doll, and ending with Shavasana.

Figure 1

Elsie's drawings before (L) and after (R) the movement and mindfulness activities during week three



After the sequence, Elsie produced an updated depiction of her mood with more warm colors, a lighter colored smile, and described herself as 'happy' and as a '5' or having a lot of energy. She also sat more upright and was more conversational with the other people at her table, whereas before she had appeared much more absorbed, even lost, in her own world.

Another student, Ether, is typically bursting with energy and ready to explain every thought and feeling running through his head. The researcher had substitute taught in the class over the course of the school year and had previously observed that Ether was often getting in trouble. He would frequently become upset with his peers, cry, and try to hit them. His energy and lack of impulse control would often result in tears. These behaviors continued during the first week of the study, during which Ether described himself as bored before, during, and after the activities. During the first week of the study, Ether apathetically described himself as "4 - bored" before the

activities and as “5 - bored” after the activities. Afterwards, he seemed to show slightly more interest but still displayed a seemingly disengaged demeanor. His drawing had no visible face and used a lot of gray, depicting his unengaged state.

Figure 2

Ether's drawing after the movement and mindfulness activities during week one.

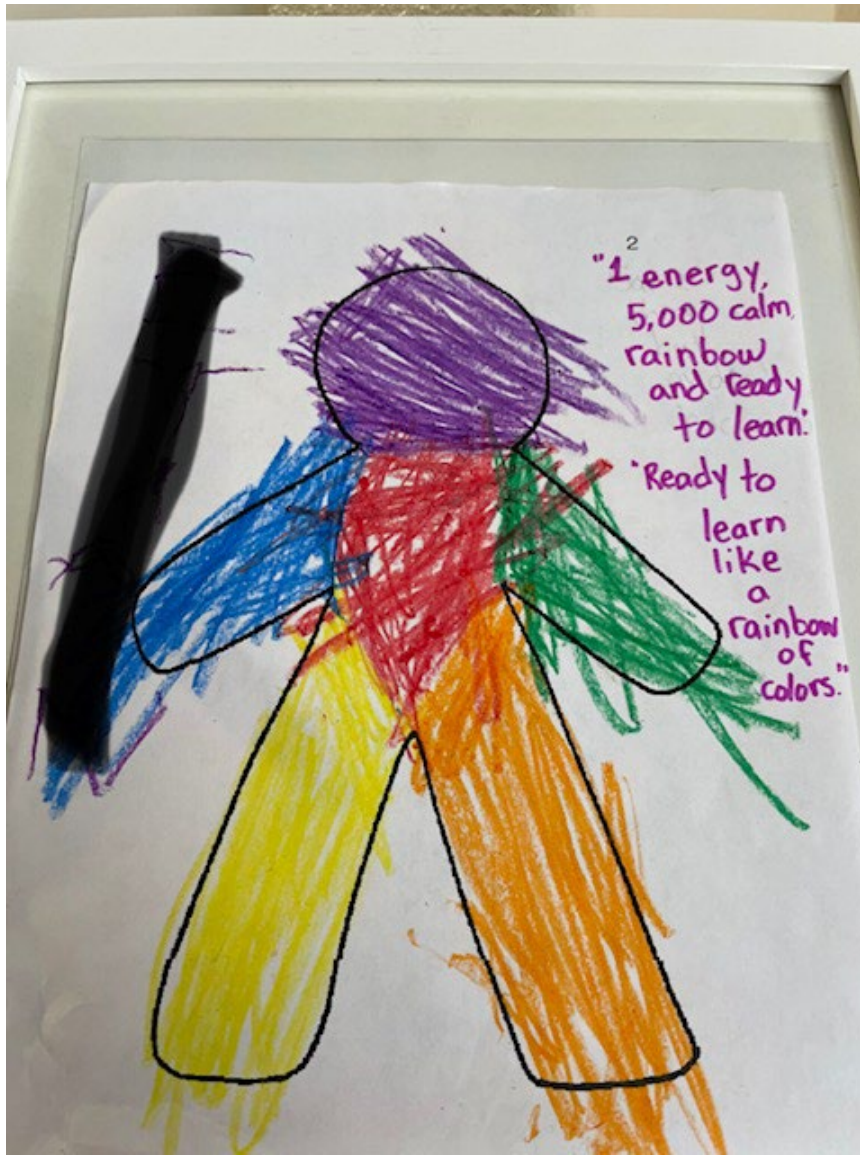


During the second and third weeks of the study, a shift in Ether became apparent. He became more engaged during school and throughout all the periods of the day. When asked how he was feeling, his eyes lit up and he eagerly exclaimed that he was, “Rainbow and ready to learn!” During the second two weeks of the study, he was an enthusiastic participant in the study and eager to learn more. Subsequently, after participating in the study, Ethan has a drastically

different demeanor and is excited, attentive, and engaged in all activities throughout the school day. During play time, he has not had conflicts with others and instead is focused on play. He has shared all about his feelings and knowledge of vehicles and building. His emotion regulation abilities have seemingly improved drastically and is reliably elated throughout the school day. During the second week, the activities started with a five-minute guided meditation. At the beginning, the students focused on breathing and noticing how their breath felt. They thanked themselves for showing up and taking this time to relax, noticed and checked in with their feelings, then pictured a white ball of light filling their bodies with love, kindness, and happiness. At the end, they did three deep breaths in, exhaling with heavy sighs. Lastly, the students did a call-and-repeat of the affirmations, “I am thankful,” “I am loved,” “I am safe,” and “Let it go.” To end this guided meditation, and to end each week, the students gave themselves a hug and whispered “thank you” to themselves. After this, we did a short series of simple yoga poses. Ether started that day feeling “1 energy, 200 calm, and ready to learn like a rainbow of colors.” This would appear as a positive baseline self-assessment, but after the activities, Ether shared that he felt, “1 energy, 5,000 calm, rainbow and ready to learn,” and then repeated enthusiastically, “Ready to learn like a rainbow of colors. “Although the student described himself as “ready to learn” and calm during both scenarios, he described his calmness levels as significantly higher after the activities.

Figure 3

Ether's drawing after the movement and mindfulness activities during week two.



Ether started the third day with too much energy, stating before the activities that he felt he was a '5' and had so much energy that he could run around the room. Interestingly, afterwards, he excitedly described feeling "200 calm" and, then again, "rainbow and ready to learn." As he said this, his eyes lit up and he proceeded to describe his reasons for placing the various colors he chose in which areas to show how he felt rainbow and ready to learn. He explained that the orange depicted him feeling energized, and the blue and purple colors showed

how his body felt calm. Finally, the yellow on his arms and hands showed how he was ready to use his hands to play and learn.

Figure 4

Ether's drawing after the movement and mindfulness activities during week three.



Most notably, these behaviors have continued for Ether since starting the study. Prior to the study, Ether had a difficult time controlling his impulses and keeping his hands to himself. During the study, a shift occurred where Ether is now much more engaged in school and able to follow the routines and rules throughout the day. All in all, Ether seems more present and engaged during play and structured activities at school. He demonstrates being “rainbow and ready to learn” in all of his affairs at school.

Ether had clearly communicated his joy of learning while drawing, and that joy continued afterwards. His teacher reflected on how important joy is for students like Ether when asked what emotions are most helpful for students to experience in the classroom. She highlighted, “Joy of learning and curiosity. Calm can be great but doesn't have to be a factor... Probably more than anything, a feeling of joy.” Although Ether did describe feeling more calm after participating in the activities, the thing that most helped him become more engaged was this clear passion for learning that he uncovered at some point during the second two weeks of the study. His teacher also added that she “thinks they need movement because a lot of them are kinesthetic, and like learning through movement. It's very important that they're moving.”

“Happy Like a Robot Pirate”: Emotion Identification and Regulation

The second theme revealed during the course of this study was that students were better able to identify and label emotions after participating in the movement and mindfulness activities. Not surprisingly, this ability also increased as the weeks went on in the study and might indicate the value of developing this as a regular practice. Before the drawing exercises, especially during the first week, students tended to use simple words to describe how they were feeling such as “mad,” “sad,” “happy,” or “tired.” After completing them and in the second two weeks, students were better able to describe how they were feeling with an explanation attached to why they were feeling that way. Part of this may have been increased comfortability, but paying attention to and discussing how they were feeling appeared to improve student ability to identify and label emotions using more than a single word. This was demonstrated by students stating remarks like, “rainbow and ready to learn,” “happy like a robot pirate,” and “excited to see my grandma afterschool” after participating in the movement and mindfulness activities. It was also interesting to note that during the second two weeks of the study, students were able to

explain to me why they were feeling sad or mad when they did not during the first week. For example, during week three, students began giving explanations for being mad, such as, “My friend did not want to play with me at recess,” or “I miss my mom.” During the first week, they would simply state that they were “mad” or “sad” with no further explanation. Over the course of these experiences, students in all three classes began describing their feelings in a more in-depth manner. This exemplified students’ expanded vocabulary and skill development over the course of the study.

In all three interviews, each transitional kindergarten teacher stressed the importance of explicitly teaching social emotional learning. They added that teaching mindfulness techniques was one great way to do this. Hadla’s teacher explained in her interview that:

Being able to express their feelings by giving them tools to know what feelings they're having, and helping them through various feelings, allows them to participate in the school day academically because their needs are met.

Physiological state plays a significant role, what kinds of feelings are helpful for learning, like being calm, being happy, and what conditions help them have those feelings. Talking through these feelings helps them have more self-awareness.

In other words, students need tools like movement and mindfulness to help them identify and cope with their feelings, especially uncomfortable ones. This quote from the interview illustrates how when students learn to check-in with and cope with their emotions, it helps them in their peer relations as well. If a student gets upset while playing with friends and is able to use mindfulness practices to breathe and calm down, it can help them better work out conflicts with friends and come up with solutions. Like the teacher said, being calm is helpful for learning. Mindfulness can help provide young students with the tools they need to get in a calm state and

thus succeed at school. This outlook on explicitly teaching children to check in with their feelings and talk through them seemed to be helpful for improving peer relationships during this study.

One example of students' improved ability to regulate and identify their emotions after participating in the movement and mindfulness activities can best be illustrated by Jas, a bright, energetic boy who is slow-to-warm-up around other adults but his friends he plays with at school. Jas enjoys building, playing with cars, running around outside, and playing with paper airplanes. He can be shy, but typically has a lot of energy and plays well with his peers. Sometimes Jas will become withdrawn and when asked how he is doing will shrug or provide one-word explanations. Over the course of the weeks Jas participated in the movement and mindfulness activities, his ability to explain why he was feeling certain ways seemed to improve.

Before the week one activities, Jas described himself as feeling like a '1' - meaning very calm, and as feeling "bored." He did not care to elaborate on why he felt bored. During the week 1 activities, the students started with repeating the affirmation, "1-2-3 calmer me, 1-2-3, I hug me." They then did several butterfly breaths, lifting their elbows up like butterfly wings as they breathed, and proceeded to tense and relax various muscles in their body before breathing and letting their body melt into the carpet. After this week's mindfulness sequence, they did eight yoga poses, including several cat-cows, downward dog, chair, tree pose, butterfly, cobra, child's pose, and then ending in Shavasana. After the activities, Jas described still feeling like a '1' in terms of calmness, but he also added that he felt "sad." Again, he chose not to elaborate on why he felt sad. This example showed very little change in ability to explain reasoning for feeling certain ways and get engaged at school. Most of the students, including Jas, did not use more

than one word to describe how they felt during week one, even when asked why they felt that way.

During week two, Jas came into the classroom clearly angry and upset. When asked how he was feeling, he angrily responded, “5 - mad.” When asked why he was mad, he simply shook his head and continued to draw with his head down. After mindfulness and yoga, his disposition had undergone a profound alteration. While before he was angry with his body bent over his desk, his post-activity demeanor beamed proudly as he drew and his body was upright. When asked how he was feeling, he once again stated ‘5’ then added eagerly that he felt, “happy like a robot pirate.” While his original drawing showed an angry face and a lot of dots outside the picture, his second drawing showed a person with a more wide-eyed expression. Most notably, Jas’s disposition had changed, and he remained cheerful for the remainder of the day.

Figure 5
Jas’s drawings before (L) and after (R) the week two activities.



Since this study, Jas has become extremely close with two other boys in the class. Every morning, they excitedly greet each other and stand at the door to cheer and welcome other students into the classroom. Jas’s demeanor at school has changed drastically. While he used to be shy or withdrawn at times, now he is outgoing and talkative. Since he started using bigger

scissors that fit his hands, he proudly tells everyone that he has big scissors. Not only has Jas's ability to label and identify his emotions improved, but his peer relationships have blossomed as well.

“Everybody Should Play Whatever They Want”: Improved Peer Relationships

Another notable finding in the study is that many students experienced improved peer relations after participating in the activity. One goal of the mindfulness sequences was to encourage students to feel empathy towards themselves and others. This was featured in the meditation each week, during which students were asked to breathe love out to their peers or repeat affirmations that support positive peer relations like, “I am kind,” “I make good decisions,” and “I can take the time I need to calm down and feel better.” After participating in the activities, students generally seemed more social and able to engage positively with their peers.

One example of improved peer relations was demonstrated by a student named Hadla. Hadla had the tendency to be bossy in her relationships with her friends. She loved to talk and assign roles to her friends during imaginary play. During recess, she would lead her friends around the playground, pointing to various areas and barking commands at them about what they should do. Although her friends typically followed her commands and did as she says, they sometimes became upset because they are not able to make their own choices during imaginary play. In her interview after the activities, Hadla stated happily that she believed “everybody should play whatever they want.” This remark was notable for Hadla because prior to this statement she had not allowed her friends to play how and what they wanted. This newfound belief was shown in her peer relations throughout the day, where she listened more to her friends and allowed them to participate how they wanted to during cooperative and imaginary play. This

change in behavior was noteworthy because it was a stark contrast from Hadla's typical peer relations at school. Overall, Hadla seemed better able to play cooperatively with others after participating in the movement and mindfulness activities.

Figure 6

Hadla's drawings before (L) and after (R) the movement and mindfulness activities during week three.



Conclusion

In conclusion, this study addressed the three research questions. The first question asked, "How does adding movement, mindfulness, and yoga impact behavior in the transitional kindergarten classroom?" The second research question was "What are student perspectives on movement and mindfulness interventions as it relates to the learning experience?" The third research question was "How do students feel before and after doing fifteen minutes of movement and mindfulness?" To begin to answer these three questions, this study found that young children who participate in mindfulness and movement activities experienced higher levels of calmness, moods that are conducive to successful learning, emotion regulation, and improved peer relations throughout the day. Adding movement, mindfulness, and yoga seemed to improve student's

mood, attention, and readiness to learn. Students described feeling calm during the movement and mindfulness activities and overall felt better after and seemed more engaged. Often students who felt sad or mad before the activities felt happy and calm after. Meditation provided students with a chance to pause, focus on deep breathing and awareness of the present moment, and relax. Equity plays a role in the effectiveness of this because the ability of a school to provide mindfulness and movement programs depends on school funding, resources, and time constraints. For example, although mindfulness and movement are free, some teachers may not feel comfortable in their ability to teach students how to use these tools. This is where funding for programs to help teachers teach movement and mindfulness can help support educators in teaching these skills to their students.

Students who have more struggles at home may have a harder time engaging in mindfulness and movement, and thus may experience decreased benefits from participating in such activities. Students who experience greater support, emotional development and stability at home come to school better prepared to engage with academic skills development. However, this puts many children at an inequitable disadvantage based on the structural challenges that more deeply impact some groups of children. In parallel, schools with the most funding may be best able to provide such programs, but the students there may need it less than schools that lack such funding and programs. In sum, the findings of this study show that using mindfulness and movement in the transitional kindergarten classroom benefits and supports students in learning, social emotional regulation, improved peer relations, and being able to identify and overcome emotional hurdles.

Chapter 5: Discussion

The findings of this study indicated that mindfulness and movement activities helped transitional kindergarten students to better identify and regulate emotions, feel more ready to learn, calm down, and engage in improved peer relations. Students overall felt calmer in their body following mindfulness and movement activities. Their calmness and increased ability to identify emotions was shown through their Likert scale ratings of how calm they felt, drawings, and verbal descriptions of how they were feeling before and after the activities, and individual student interviews. There was also evidence that students could better identify how they felt using more descriptive words after participating in the activities. Students' peer relations seemed to improve after being engaged in the activity as demonstrated by a reduction in interpersonal conflicts. Students overall seemed to gain an increased sense of calmness after participating in the study. During the second two weeks of the study, there was a noticeable expansion of vocabulary used by students to describe how they were feeling, and more significant improvements in levels of calmness and mood were observed especially after the activities. Finally, those students who experienced no changes before and after the mindfulness and movement activities were better able to identify why they were feeling upset or angry after completing the activities.

The literature has similarly shown that mindfulness can help improve executive functioning and emotion regulation capacities which can promote academic achievement in young children (Zelazo, Forston, Masten, & Carlson, 2018). Other research on mindfulness has shown that it can decrease anxiety and stress in young children (Hooker & Fodor, 2008). And like this thesis, previous research on movement has shown a correlation between kinesthetic movement, including yoga, and increased cognitive functioning and development in young

children (Zeng, Ayyub, Sun, Wen, Xiang, & Gao, 2017). This research was mirrored by the findings of this study, during which students demonstrated increased overall calmness, improved emotion identification and regulation, and better peer relations.

Dariotis, Mirabal-Beltran, Cluxton-Keller, Gould, Greenberg, and Mendelson (2016) found that a yoga and mindfulness intervention focused on stretching and breathing practices increased emotion regulation and decreased stress in elementary school students. These findings mirror the results of this thesis because the transitional kindergarten students who participated in the mindfulness and yoga sequences had lower calmness scores overall and displayed increased emotional regulation. Summerford (2009) stated that movement practices in the classroom help boost mood and increase focus because the movement increases the production of dopamine and firing of neurons. This was reinforced by the findings of this thesis, as the students overall had more positive feelings during the second two weeks of the study and after participating in the study activities as compared to before participating in the activities and during the first week of the study.

Implications for the Literature

Although much research has studied movement and mindfulness in elementary school, little to no research has been conducted on movement and mindfulness in the public transitional kindergarten classroom. In addition, little to no research has been conducted on the effects of having students repeat affirmations, to reinforce positive feelings. While the findings of this research affirm the research presented in the literature review, such as students having improved calmness, emotional regulation, and relationships with their peers (Kaufman, 2010), this research also further established that students overall displayed an increased ability to identify their

emotions and why they were feeling that way after participating in the movement and mindfulness activities.

Overall, students displayed increased emotional awareness and regulation after engaging in the meditation and yoga sequences during weeks two and three. This takes into account the findings from McClelland, Pitt, and Stein (2015) that movement increases not only gross motor function, but cognitive function as well, including the ability to regulate emotions and demonstrate altruistic behavior. The findings of this research demonstrated that movement and mindfulness can help students connect with how they are feeling, whether those feelings are positive or negative, and better be able to explain those emotions.

The findings in this study differ from the findings in the literature because they were focused more around students' qualitative behavior assessments, drawings, and self-reported mood and level of calmness. Additionally, while results varied from student to student, this study viewed increased peer socialization as a positive. Since early childhood is a period where learning social and emotional skills is critical for successful behavior management later on in school (Schultz, Richardson, Barber, & Wilcox, 2011), this study focuses on qualitative observation of social behaviors like many other studies have not. Rather than viewing success as students sitting quietly, this study sought to view success as students having positive peer interactions.

Another gap in the literature this project addressed was using a program inspired by multiple established mindfulness practices. One of these included a mindfulness technique called Mindfulness-Based Cognitive Therapy for Children (MBCT-C), combined with other meditation practices in a simplified sequence of activities. MBCT-C involves group therapy that engages children in sensory-based practices, seated breath meditations, mindful movement activities,

body scans, visualization practices, and drawing or writing (Semple & Lee, 2014). It combined this practice with receptive meditation, involving focusing one's mind on an object to promote calmness and stillness (Fisher, 2006). In the study, the meditation practices were partially inspired by MBCT-C in the sense that the practices incorporated guided meditations with visualizations and body scans, mindful movement practices, and drawing. This study also combined generative meditation, in which attention was focused and guided through the use of guided meditation with visualizations. Third, reflective meditation was also used, involving an open reflection on a particular stimulus, such as a question, thought, or image (Fisher, 2006). Lastly, this study focused on slower, calmer movements like yoga and slow movements rather than cardio or other rapid movements.

This study also found that some students had their energy levels increase after the study, while some decreased. As a result, qualitative observations of each child's mood, calmness, behavior, drawing, and peer relations were combined to form an opinion about how the study affected them. Overall, students were calmer, but the outliers seemed to benefit too. This differs from other findings in the literature focused on cognitive function, such as students' brain network modality (Chaddock-Heyman, Weng, Kienzler, Weissshappel, Drollette, Raine, & Kramer, 2020). Rather than studying one specific thing, the findings in this study sought to assess the whole child before and after engaging in the movement and mindfulness activities.

Implications for Practice and Policy

One of the benefits of the simple mindfulness and movement activities used in this study is that they are free and can be used by anyone at any time. Although the researcher had personal experience and training with many of these practices, the idea of incorporating some sort of mindfulness and movement activities into the classroom can easily be used in the classroom by

any teacher. Due to the age of the students, being 4-5 years old, it is critical to support their social and emotional learning (SEL) because it lays the foundation for future success (Jones, Barnes, Bailey, & Doolittle, 2017). Movement and mindfulness activities are a great way to help students get in touch with their bodies, feelings, and the present moment and help set them up for success. With this research, it makes sense to incorporate 10-15 minutes a day of movement and mindfulness into the transitional kindergarten classroom.

These findings can inform practice in several ways. First, feedback from teachers proved that brevity was a key component to success in mindfulness and movement practices. Due to shorter attention spans in young children, the 10-15 minutes of mindfulness and movement featured in this study helped increase its effectiveness by keeping children engaged. Finally, the simplicity of activities in this study were key. All of the yoga poses featured in this study were basic and the use of simple poses can help serve as building blocks to more difficult yoga poses in the future. These simple poses are also effective toward instilling confidence in young children and not demanding too much skill in these practices. Overall, the findings in this study showed that a brief, simple mindfulness and movement practice can benefit young children and increase their ability to regulate and identify emotions, engage with their peers, and feel better at school. This implies that future mindfulness and meditation programs can benefit children through short, simple practices that involve simple yoga poses, mantras, breathing exercises, and guided meditation.

Classrooms

This practice was found to be helpful to benefit students, increase the researcher's qualitative awareness of students, how they felt at school, and their peer relations. Additionally, doing these practices in all three of the TK classes at the same school helped improve school

culture and increase the extent to which students in one class interacted with one another. If grade-level teams are able to communicate and set up shared meditation and mindfulness practices in their classrooms, it could effectively create an increased sense of community and improve SEL practices across the grade level. It should be a priority for transitional kindergarten teachers, and other teachers in the lower grades, to incorporate these practices into the classroom to support students' social and emotional skills. Finally, administrators can help support teachers in doing this by providing training, instruction, and encouragement on how to best incorporate these practices into the classroom.

Schools

School policies that create time and space for mindfulness and meditation for students and staff can achieve these through school-wide meetings and trainings, community meditations and physical movement, and teacher-led initiatives. Schools could benefit from using these practices in all grade levels to help support their students in decreasing stress and improving mood and attention. Mindfulness and exercise trainings could help standardize these practices and help support teachers in guiding their students through meditation and movement activities. Teachers, administration, and students can all benefit from using movement and mindfulness practices in their daily lives. These practices can increase a sense of whole-school community, well-being, and presence.

School administrators would also benefit from these practices as having such supports in place to promote staff and students could increase teacher satisfaction and retention. This, in turn, could make administrators' jobs less stressful and more fulfilling.

Policy

An educational policy providing staff training, resources, and support to teachers to teach movement and mindfulness would be highly beneficial to both teachers and students. Not only would it help teach educators the skills needed to construct their own meditation and exercise practices to help them be better teachers, but it would help them provide this gift to their students as well. This policy would promote equity because having it in place would ensure that teachers, students, and administration all have access to these resources to help promote social, emotional, and cognitive development, regardless of financial disparities.

If done correctly and executed well, mindfulness and movement practices used in the classroom can help students calm down, identify and regulate emotions, and have improved interactions with their peers. In many schools, students have access to far less resources and funding than other, more affluent districts. As a result, a policy put in place to ensure that all students have access to mindfulness and movement curriculum could benefit those students who need it the most. This policy could help teach teachers how to provide mindfulness and movement in a way that supports the physical, social, and emotional needs of their students. Often students in more disadvantaged schools have more stressors in their daily lives as a result of having less resources and financial stability. Therefore it is critical that mindfulness and movement be accessible to these students to help them cope with stressors and develop the social and emotional skills they need to succeed academically.

Limitations of the Study and Future Research

Creating standardized meditation and movement activities in classrooms comes with the need for team meetings, trainings, workshops, and supports in place to keep these activities engaging and successful. This study had a small sample size of only 66 students from one

affluent district. More research is needed to see how mindfulness and movement activities could impact transitional kindergarteners in lower income schools.

Limitations of the Study

Study limitations include limited sample size, with only three transitional kindergarten classes as the focus. Another limitation of the study was limited length as the study was only three weeks and with only one integrated experience per week. Another limitation is that several of the students have already been regularly exposed to yoga and some breathing practices in their classroom. This could also be seen as a benefit since it means students were already familiar with these techniques, which made it easier for them to participate, but calls into question how effective they may be in a school with students who have little to no experience. However, this does also highlight the structural inequities about preparation that this research seeks to address. Finally, lack of cultural and racial diversity was another limitation as most students are of white and Asian descent with only two African American students and one Hispanic student in the study. The data was variable from student to student and many students who were already calmer and more attentive continued to display those attributes throughout the study. Likewise, students who tended to become more distracted and off-task also continued to exhibit those tendencies throughout the study.

Another potential limitation is that on several occasions, students would repeat the exact responses that other students at their table gave. With this age group, it is an ongoing process for children to be able to successfully identify and label emotions. Although this study sought to help students improve these skills and seemed to be successful in most cases, it should be noted that many factors could play a role in how students respond. These factors may have included student inclination to please the researcher due to the researcher's positionality as a frequent

teacher in those classrooms, the desire to copy others in seeking peer approval, or being unsure of how they were feeling or lacking the appropriate vocabulary to help them describe their emotions with more than “happy,” “good,” “calm,” “sad,” or “mad.”

Another limitation in this study was a a limited sample of teachers and brief interviews with the teachers. The three educators did not represent the diversity of all educators and the sample size of teachers was too limited to generalize to the general population of teachers.

Future Research

For future research, it would be useful to expand the study by using movement and mindfulness in a diverse range of communities as well. One of these potential demographics for future research could be research at lower-income schools with fewer resources to provide students with such programs. Another demographic that future research could address is older children and using mindfulness and movement with them. Although there is more research that has studied movement and mindfulness in older children, the two combined and in longer intervals could be a potential target for research in the future. It would also be interesting to extend this study and do it more than once a week and for a longer period than just three weeks, and to track students in these practices across years. Finally, it could be interesting to combine the slowed down movement and mindfulness in this study with more movement-intensive, cardiovascular activities in the same age group. Many of the students in this study, and other young students, thrive when they are able to use gross motor movements in a highly active manner. It could be interesting to investigate whether cardiovascular activity combined with these slowed-down movements could further improve social, emotional, and cognitive development in young children.

There are also many quantitative pieces of data that could be used to improve future research. Studying students' physiological responses to the activities could improve the data and add to its validity. Such responses could include measuring students' heart rate, analyzing various forms of neurological responses, coding the frequency of behavioral disruptions or outbursts, and tracking time taken to complete tasks before and after engaging in the activities. Lastly, having administrators and more teachers involved in the mindfulness and movement practices could encourage participation, increase a schoolwide sense of community, and garner attention and support.

Conclusion

Mindfulness and movement are two distinct categories that help support young children's social, emotional, cognitive, and academic development. This study aimed to increase the benefits to students by using these two tools in conjunction. Mindfulness involves slowing down and paying attention to the present moment. Exercise also involves becoming grounded in the present moment but through movement rather than stillness. Both are important and critical components for helping support young students.

As transitional kindergarten gradually becomes a part of many public schools, it is important to find ways to support these young 4-5 year old students who have not yet developed the same capabilities to regulate and identify their emotions like students in older grades. Implementing movement and mindfulness practices in the classroom can help young students learn the social and emotional skills they need to succeed in school socially and academically. Implementing policies to ensure that all students are receiving access to these tools is critical to promoting equity and benefiting students from various demographics. The benefits of learning to successfully exercise and meditate early on reap benefits that can last a lifetime. These two tools

have been well studied and have been shown to benefit individuals of all ages. The earlier students can start these practices, the sooner they can be set up for success by being explicitly taught tools to help them calm down, feel better, and cope with difficult emotions.

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Appendix A: IRB Approval Letter



Feb 6, 2023

Larisa Ward-Seitz 50 Acacia Ave.

San Rafael, CA 94901

Dear Larisa,

On behalf of the Dominican University of California Institutional Review Board for the Protection of Human Participants, I am pleased to approve your proposal entitled *Movement and Mindfulness in the Transitional Kindergarten Classroom* (IRBPHP Initial IRB Application #[11092]).

In your final report or paper please indicate that your project was approved by the IRBPHP and indicate the identification number.

I wish you well in your very interesting research effort.

Sincerely,

Michaela George, Ph.D.

Chair, IRBPHP

Cc: Matthew E Davis

Institutional Review Board for the Protection of Human Participants

Office of Academic Affairs · 50 Acacia Avenue, San Rafael, California 94901-2298 · 415-257-1310 www.dominican.edu

Appendix B: Sample Post-Exercise Questions

1. How did you feel today
2. How does your body feel at this moment right now?
3. On a scale of 1-5, 1 being ready to sit and focus on a task with no problem and 5 being about to run around the room, how calm do you feel?
4. Did you notice any differences between how you felt when drawing today compared to how you felt when you were drawing last time?
5. If so, why do you think there is a difference?
6. What helps you feel certain ways?

Appendix C: Sample Final Post-Exercise Questions

1. After drawing today, did you notice anything new about your feelings?
2. Is there anything new that you noticed about what helps you feel one way or another?
3. What kinds of feelings are helpful for you when you are at school?
4. What can help you have those kinds of feelings?
5. If you were going to come back as an assistant teacher next year, what would you think to create for kindergarteners to have helpful feelings for school?
6. Is there anything else you noticed about this research that you think is kind of interesting, that you might do differently, or that you'd like to share with others?

Appendix D: Sample Individual Teacher Interview Questions

1. In your experience, what would you say are the conditions for an effective learning environment?
2. What is the role of students' feelings in that experience?
3. If you think students' physiological state plays a significant role, what kinds of "feelings" are helpful for learning? What conditions contribute to the nourishment of those physiological states?
4. Are there any practices that you've found to be particularly effective?
5. What is your perspective on intention setting in the classroom?
6. What is your perspective on mindfulness of meditation activities?
7. What is your perspective on yoga and movement activities with students?
8. If you had advice for new teachers around optimal learning states, what would it be?
9. Are there things you wish could be changed about school to support student learning?
10. What would you want for yourself or your students to help create the conditions for optimal learning and success in the classroom? (policy, training, communities of support, teacher practices, guest speakers, resources/materials/books/audio, etc?)