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THE MIND MATTERS: MINDFULNESS AND YOGA IN PRESCHOOL AND K-12
SCHOOLS

by

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A thesis submitted to the faculty of the University of Mississippi in partial fulfillment of the requirements of the Sally McDonnell Barksdale Honors College.

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much more than my sweat. My mat holds my grief, my anxiety, my anger, my wins, my losses, my fears, and my hopes. More than any of that, my mat allows me a 2 and a half by 6 foot rectangle where any risk goes and perfection doesn't exist. Only growth exists on my mat, and no place, space, or person has ever challenged me to grow quite as much as my mat. I wish I had come to my practice earlier in life, so that is the purpose to which this research is dedicated. It is my most sincere hope that children all across the world will have access to this practice that will change their lives, their minds, and their bodies. The light in me sees, honors, and adores the light in you.

ABSTRACT

This study uses a systematic literature review to examine the efficacy of preschool and K-12 school based yoga and mindfulness programs. A collection of 47 sources were examined to compare and contrast results and determine best practices. The results of the literature review are divided into three primary categories: implementation methods, student outcomes, and teacher and student opinion. The results suggest that individual and whole school implementation methods are the most effective. The results also suggest that there are positive student outcomes in regards to classroom behavior, child executive functioning, and anxiety. Teacher and student opinion on these programs are largely favorable. This study also discusses and draws conclusions from the results while providing policy recommendations for expansion of preschool and K-12 school yoga and mindfulness programs.

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CHAPTER I: INTRODUCTION AND BACKGROUND

Over the past few years, there has been an increasing focus in the United States on child and adolescent mental health. The increased focus is not necessarily a result of a sudden increase in mental health struggles, but rather an increase in awareness and a reduction in stigma. Increases in suicide rates among adolescents have really opened many eyes to battles that even young children are facing. Just as adults need tools and help to cope with their feelings, children do as well. Compulsory K-12 education in the United States offers a good opportunity for children and adolescents to get the tools they need to work through things like anxiety and depression. Yoga and mindfulness programs are just one way that schools can provide students with tools for mental wellbeing (August et al., 2018). Yoga and mindfulness programs have begun to gain traction across the globe as powerful education tools. The purpose of this study is to examine the existing literature and determine what, if any, outcomes are offered by yoga and mindfulness practice in schools.

Definitions

There can be a lot of ambiguity in the terms “yoga” and “mindfulness,” and there are some accompanying terms that require definition. For the purpose of this study, yoga will be defined as, “a system of physical postures, breathing techniques, and sometimes meditation” (Merriam-Webster, 2021). Yoga, in this context, encompasses three main pillars: physical movement, breath, and mindfulness. Mindfulness, for the purposes of this study, is defined as, “the practice of maintaining a nonjudgmental state of heightened or complete awareness of one’s thoughts, emotions, or experiences on a moment-to-moment basis” (Merriam-Webster, 2021). Essentially, mindfulness is a conscious understanding and reckoning of one’s thoughts, emotions, or experiences, but not attachment to those thoughts, emotions, or experiences. Meditate (the

verb associated with the process meditation) is defined as, “to engage in mental exercise (such as concentration on one’s breathing or repetition of a mantra) for the purpose of reaching a heightened level of awareness” (Merriam-Webster, 2021). While there will not be much technical yoga language employed in this study, there are a few additional terms which will be beneficial to define. Ashtanga yoga is a style of practice which follows a specific sequence of asanas (postures). In traditional ashtanga yoga, the same asanas are repeated in the same order every time (Ashtanga Yoga, 2015). Vinyasa yoga is a style of practice in which asanas are directly connected to pranayamas (breath), but there is no set pattern of asanas. The most important part of vinyasa practice is the pranayama, or the one breath, one movement practice. Vinyasa practice is fast paced and offers a large variety of options (Yoga Journal, 2021). Lastly, savasana is the final resting asana of a flow. It is also known as corpse pose, and it is just what it sounds like. The goal of savasana is to exist in the state of mind between sleeping and being awake. Breath is normal, but the mind should not wander to anywhere. The goal is for the mind to just be completely blank, and if thoughts come into the practitioner's head, they should push them out and not attach to them.

Origins and current movement of children’s yoga

The concept of yoga for children in the United States is relatively new. In the late 1990s and early 2000s, there were VCR tapes of yoga lessons available for children to use in their homes, and these tapes made their way into some schools across the country. Yoga was also being integrated into some forward thinking preschool programs, but yoga for kids had still not exactly caught fire. Yoga Alliance, the United States’ largest yoga teachers union, did not create a certification program for children’s yoga until 2010 (Yoga Alliance, 2020). Prior to this occurring, yoga that was taught to children (whether at a recreation center or in a school) was not

specifically formulated for children and their bodies. Once children's yoga began to take off, it became more important to create training and protocols that addressed the specific needs of children.

The biggest advocate in the push for yoga in schools and in homes across the world is the global yoga brand, Alo. Alo created Alo Gives' "Changing the World through Yoga" campaign in 2018. The goal was to bring yoga to as many children all over the world as possible. To raise awareness and funds, Alo had a social media campaign in 2019 that encouraged current yogis to share their yoga experiences and when they came to their practice. The point of the campaign was to demonstrate the positive benefits of yoga practice and get people to think about how their lives would be different if they had started practicing even earlier. Over the past year, Alo Gives has brought mats and teachers to children in rural parts of the world and free access to yoga flows and mindful moment plans for teachers to use (Alo Yoga, 2018). In this time of a global pandemic and changes that have affected children more than almost anyone else, private companies are taking great strides towards making yoga accessible for all children.

Curriculum development

A number of curricular programs have developed in recent years to provide teachers with easy ways to implement yoga and mindfulness programs into their classrooms. Without these programs, yoga in classrooms would probably not be nearly as widespread. Yoga 4 Classrooms is one of the largest of the curriculum developers, and the company is doing more than just trying to push yoga out into the world. Researchers developed the curriculum through examining existing studies and conducting studies of their own. The company seeks to not only provide curriculum packages, but support for teachers and additional training. They state, "[Yoga 4 Classrooms] is self-sustaining as educators continue to use the program with future groups of

students, while the concepts are reinforced as students move up through the grades of the school” (Yoga 4 Classrooms, 2021). The idea that students and educators alike can carry the concepts and foundations from the curriculum through the years makes it very desirable for schools looking to implement yoga programs. Providing long term solutions for emotional regulation is one of the big goals of school yoga and mindfulness programs, so curricula that offer this opportunity are paving the way for expansion of these programs. There are countless other free and paid resources available to teachers and schools, and the development of the curriculum is only getting more advanced and efficient at creating effective programs.

In order to determine the outcomes offered by yoga and mindfulness practice in preschool and K-12 schools, I will examine a number of things. First, I will detail the systematic literature review methodology used in this study. Following the description of the methodology, I will share the results of the systematic literature review in three chapters: implementation, student outcomes, and teacher and student opinion. I will highlight studies from the literature that provide insight into implementation, student outcomes, and teacher and student opinion. I will then discuss and contextualize the results. Next, I will provide some policy recommendations for individual school districts who seek to implement yoga or mindfulness based programs. Finally, I will share limitations of this study and opportunities for future research.

CHAPTER II: METHODOLOGY

Currently, the practice of yoga and mindfulness in preschool and K-12 classrooms is scattered and less frequent than other traditional classroom practices. Due to the relatively new practice of these classroom techniques, the opportunity to study their effectiveness firsthand is limited. Therefore, this study employs a systematic literature review. By performing a systematic literature review, I was able to get a broad scope of the existing research on the practice of yoga and mindfulness in preschool and K-12 classrooms. To gather the widest range of applicable studies, I used the OneSearch tool from the University of Mississippi Library. OneSearch draws its results from a variety of academic journals, creating a single space to find literature relevant to the practical implementation of yoga and mindfulness in classrooms, teacher opinion on the efficacy of yoga and mindfulness programs, student opinion on school yoga and mindfulness programs, challenges to implementation of yoga and mindfulness programs, teacher and student buy-in to yoga and mindfulness programs, quantitative impacts on achievement and behavior, and many more topics.

The process I employed to determine which pieces of existing literature to include in my literature review was an exhaustive one. I started the process by consulting the public policy research librarian at the University of Mississippi who counseled me on the advanced search feature on OneSearch and selecting effective search terms. Using OneSearch advanced search, I began by entering the following search terms: ((“yoga”) AND (“education”) AND (“mindfulness”) AND (“classroom”) AND (“school”) AND (“behavior” OR “achievement”)). This yielded an initial total of 1,724 results. To help narrow the field and provide sources that would have a greater opportunity to meet inclusion criteria, I narrowed to only peer-reviewed results. This yielded a refined total of 732 results. I then filtered out those sources which did not

have the full text online. This yielded a total of 718 results. To ensure that research was current and relevant, I selected the “past 3 years” option on OneSearch. The 3 year mark provided more quality source material than 1 or 2 years without yielding an unmanageable pool of sources. This eliminated any sources which were published more than 3 years ago and yielded 302 results. Finding this to be a manageable number and enough source material to provide an in depth look at the practice of yoga and mindfulness in schools, I evaluated the abstracts of the sources. To stay true to the integrity of a systematic literature review, I read each abstract looking for certain key terms that made a particular study relevant to this project. Due to the broad search terms, some journal articles could be deemed irrelevant easily. Any article classified by a “lack of relevance” was one that had nothing to do with yoga or mindfulness in classrooms or as a practice among children more broadly. There were also a number of articles which were more focused on the practice of yoga and mindfulness among educators, aiding them in developing positive mental health practices. I declined to include any article of this type as this study is focused on the impact on students rather than educators. There were many studies which focused on yoga and mindfulness practice among students in secondary and post-secondary education. I did not include these studies because this study is focused on early childhood education programs and K-12 schools. I also decided not to include any studies which focused on students with autism because I wanted to focus on the impact on the population as a whole. The articles which I ultimately decided to include reviewed, either positively or negatively, or provided background context to yoga and mindfulness practice in preschool or K-12 classrooms.

Based on these inclusion criteria, my study included 47 articles. This number of sources provides enough for a thorough review of yoga and mindfulness practice in schools. The source material performs three main functions. The first is background information on yoga,

mindfulness, child anxiety, and attention disorders. The second function is providing quantitative analysis of the impacts of yoga and mindfulness practice in the classroom on things such as classroom behavior and achievement. The third function is providing a look at different methods of implementation, including in traditional classrooms, in physical education, school-wide, and as an intervention mechanism. This look at methods of implementation most informs the policy recommendations.

CHAPTER III: RESULTS FOR IMPLEMENTATION

The literature demonstrated quickly that there were a number of ways in which schools could implement yoga and mindfulness programs. Across the whole of the literature, there were dozens of unique ways in which districts, schools, or teachers implemented yoga and mindfulness programs. The results of these studies inform our opinion on which methods of implementation have the best chance of success on a larger scale. The results also provide guidance to those who may not have the resources to implement the large scale and higher price tag options. This chapter is broken down into four different implementation categories: whole school, individual classroom, physical education, and school counseling and intervention. This chapter will also address barriers to implementation.

Whole school

Despite early studies showing that whole school implementation can be one of the most effective forms of implementation of school based mindfulness programs, examinations of whole school implementation methods seem to make up a relatively small portion of the literature on school based mindfulness programs. A 2018 UMass study reviewed the literature on mindfulness programs in schools from 2006 to 2016 specifically to examine implementation differences and implementation methods. Of 17 initial articles being included in the study, only eight focused on implementation of mindfulness interventions. While the types of interventions varied from coloring to yoga to specific mindfulness curriculum, six of the eight interventions were deployed in a universal manner, or throughout the school (Bender et al., 2018). It is significant that 75% of the included intervention methods were utilized via a whole school method, indicating that whole school methods were the most well-known implementation method from 2006 to 2016.

Characteristics of effective whole school implementation

Whole school implementation poses its own unique set of problems, but it can also be very effective at quickly and efficiently deploying mindfulness based programs in schools. A study in the United Kingdom researched the distinguishing characteristics of both effective and ineffective whole school mindfulness based programs. The study compared five different schools in which a whole school implementation method was used for mindfulness based programs. Researchers conducted interviews with educators within each of the schools to better understand the effectiveness of the current implementation plan. Researchers then followed up with the participating educators after the first interview to get an update on the implementation efforts and what, if anything, had changed from the previous interview. Researchers determined that there were “six strongly distinguishing constructs and supporting extracts” which made the difference between a school effectively implementing a whole school mindfulness based program and a school ineffectively implementing a whole school mindfulness based program (Hudson et al., 2020).

The first of the constructs which contributed to effective implementation was “leadership engagement.” Understanding that buy-in is one of the most important factors in a successful program, buy-in for a whole school program starts at the top. In the study, schools which had a strong sense of commitment and support from leadership ranked higher among perceived effectiveness of implementation. Among schools with perceived ineffectiveness of implementation, teachers remarked that leadership provided “no real support, no real understanding or what the benefits might be” (Hudson et al., 2020). The second construct of effective whole school implementation was “relative priority,” in other words, how much do we care about this? When schools in the study were able to continue to prioritize their mindfulness program over other programs or budget cuts, they were more effective in implementation.

Teachers lamented that it was sometimes difficult to prioritize the mindfulness program when there is so much pressure on schools, teachers, and students to perform well on standardized tests (Hudson et al., 2020). In the schools with the most effective implementation, the construct of “networks and communications” was strongly emphasized. One teacher stated, “as a team... we use each other’s strengths, and we talk, and we work hard” (Hudson et al., 2020). By using existing meetings and structures within the school culture, teachers helping to implement whole school mindfulness based programs feel as though they have an outlet with which they are comfortable to share struggles and strategies. Similarly to leadership engagement, another construct of successful whole school implementation are “formally appointed internal implementation leaders.” These are leaders within the school who provide support for teachers and supplement the mindfulness training received in professional development settings. The next construct is “knowledge and beliefs about the innovation” (Hudson et al., 2020). This construct gets at the heart of buy-in. In schools with effective implementation, educators believe in what they are doing and seek out research to supplement training. In a school in which implementation was less effective, a teacher stated of their lack of personal practice of mindfulness, “I refute the fact that a teacher who doesn’t find it useful as a person can’t actually put over to children that they might find it useful because of course we can do that” (Hudson et al., 2020). However, the study indicates that educator practice of mindfulness contributes to better implementation. The last construct to contribute to the effectiveness of whole school implementation is “executing.” Educators at those schools which were perceived as having successfully implemented a whole school program felt that following through with the plans they created before implementation (Hudson et al., 2020).

Mindfulness studio approach

The “mindfulness classroom” approach to whole school implementation is similar in some ways to implementation in physical education, but most instances in which this method is used feature a mindfulness professional or a professional yoga instructor. A study was conducted in Israel among three schools, one of which implemented the “Mindful Language” program among all students in the schools and one which used mindfulness as intervention. The third school was used as the control school as it did not adopt practice of mindfulness or yoga in any kind. In the whole school experimental school, there were mindfulness classrooms where students would receive their mindfulness instruction from a professional. The classrooms were empty except for mats and mindful journals. Students’ homeroom teachers attended the mindfulness instruction classes with their students once a week, and sessions were typically 45 minutes long. The authors state, “The sessions include specific imagery-based scripts to enhance mindfulness-based outcomes, such as sense of safety (a ‘safe place’ script), opening the heart (meeting an imaginary compassionate animal), being aware of thoughts (noticing thoughts like watching soap bubbles), being aware of emotional charges (searching for an emotion and giving it an image), or finding insights (inviting and initiating dialogue with an imaginary wise figure)” (Sheinman et al., 2018). The study found that the whole school implementation method was the most effective of the three on increasing students’ disposition to employ mindfulness strategies to cope (Sheinman et al., 2018). This suggests that dedicated and consistent implementation methods may have more long-term impacts on student utilization of mindfulness. More than just an intervention method here, or appearing in physical education there, large-scale, generalized mindfulness practice changes behaviors.

In the individual classroom

The individual classroom implementation of mindfulness based programs is one of the most desirable. By housing mindfulness based programs in the classrooms of individual teachers, there is more personalization and consistency for students. The challenge with housing mindfulness based programs in individual classrooms is the difficulty in evaluating their effectiveness along with the success of each individual teacher at implementation. A Penn State study sought to create an evaluation criteria for determining the effectiveness of an individual teacher at implementation. The study also described some best practices for preparing individual classroom teachers for implementing a mindfulness based program in their classrooms; because, “training classroom teachers to become mindfulness instructors represents a different set of challenges” (Broderick et al., 2018). The study suggests the importance of teacher training prior to implementation, including intensive training over a couple of days with practice sessions, small group discussion, and feedback time. The study also suggests the importance of instructional and supplementary materials provided to teachers, providing teachers with all the resources they need to feel confident in their ability to lead their class through a mindfulness practice. Mindfulness training consultants are also offered as the gold standard of implementation. These consultants visit with teachers in their individual classrooms and observe the way they practice mindfulness with their students. This allows teachers to get feedback from an expert and make improvements to the way they are executing the program (Broderick et al., 2018).

The main purpose of the Broderick et al. study was to create an evaluation method for teacher implementation of mindfulness based programs in the individual classroom. The study creates The Teaching Mindfulness in Education Observation Scale (TMEOS). The TMEOS creates four primary domains in which scores are divided (Broderick et al., 2018). The four

domains can provide insight even to those not looking for a teacher evaluation method, as they clearly lay out what should be the priorities of implementation in the individual classroom. The first domain is “planning, organization, and curriculum coverage,” and the focus is on what happens before the teacher enters the classroom. This domain evaluates things such as sequencing, setting, and materials. The second domain is “teaching mindfulness” which seeks to understand the way the teacher interacts with mindfulness practice as well as with students. The third domain is with respect to “guiding mindfulness.” This seeks to evaluate the way the teacher guides the students with verbal instructions. This domain also evaluates the way the teacher utilizes environment, pacing, and keeps students engaged. The fourth and final domain is the “management of the learning environment.” The management domain is the evaluation category that is most similar to one of a traditional teacher evaluation. This domain seeks to evaluate the teacher’s ability to maintain overall control of the classroom as well as student participation. For the TMEOS, scores are provided for 28 different subcategories under the domains on a scale of 1-3 (Broderick et al., 2018). While the TMEOS was decided to quantitatively evaluate the quality of mindfulness instruction in individual classrooms, it offers key points of consideration for educators during the implementation phase, and it provides evidence for choosing individual classroom implementation over other methods.

Benefits of physical activity outside of dedicated physical education

A 2020 systematic literature review sought to examine the literature on the impacts of physical activity during school hours. The review of the literature showed that individual classrooms utilizing physical activity is an effective way to engage students and improve focus. Of the 22 included studies in the literature review, five represented studies regarding the use of yoga interventions in schools. Four of the five studies were conducted in individual classrooms

by either video instruction or a certified school yoga instructor. The review determined that yoga-centric physical activity interventions “brought forth generally moderate to large effect sizes and stand as viable interventions to targeted needs of students” (Greenspan et al., 2020). For the individual classroom, practice of different yoga postures or breathing exercises to provide physical activity breaks and interventions are relatively easy to implement as they do not take up much space, and there are thousands of existing resources available to teachers.

Individual teacher training methods

There are a number of existing programs which individual classroom teachers can employ to integrate yoga and mindfulness into their classrooms which have been cited in various pieces of literature. One example of such a program is the Yoga Calm curriculum. Yoga Calm is “an integration of physical yoga, mindfulness practice, and social-emotional learning activities” (Thomas and Centeio, 2020). An example of a pure mindfulness program is MindKinder. MindKinder is characterized by its sessions that are held six times a week for fifteen minutes, always at the same time, place, and with the same teacher. The MindKinder program separates mindfulness into four blocks, exposing students to different techniques in a manageable way. Students do blocks on meditation techniques, mandalas, visualization, and body awareness (Moreno-Gómez and Cejudo, 2019). Many more programs exist to individual classroom teachers both as free resources and paid curriculum sets.

A 2020 study conducted in the United Kingdom examined different methods of mindfulness training for teachers to help prepare them to lead mindfulness practice in their classrooms. The study sought to determine the most acceptable, effective, and cost effective methods of teacher education. Teacher mindfulness training has a direct impact on the way students perceive the benefits of mindfulness practice in school and the quantitative outcomes of

the programs as well. In determining which methods produce the most effective mindfulness educators, researchers provide valuable insight to policy makers about implementation. The UK study put teachers from 43 secondary schools into four trial categories, teachers always remaining with the other participating teachers from their school. The training for all of the teachers was broken down into two phases. The first phase being a personal mindfulness training which was either instructor-led or self guided. The second phase was a school program training (either 1 day or 4 days) to provide teachers with ideas and strategies for implementation in their own classrooms. After completion of both phases, the teachers received assessments via which they could provide feedback on their experience. The Five Facet Mindfulness Questionnaire-- 15 Item Short Form (FFMQ-SF) was used to gain understanding into the development of teachers' mindfulness skills following the first phase mindfulness training. To evaluate teaching competency, the Mindfulness-based Interventions Teaching Assessment Criteria (MBI-TAC) was used by the researchers who reviewed videos of the participating teachers teaching a mindfulness lesson to their students in the classroom. The first group of teachers completed instructor-led mindfulness training and 4-day program training. The first group had 56% of its teachers, who completed the trial in full, reach the competency threshold. The second group completed the instructor led mindfulness training and the 1-day program training. Out of this group, 33% ultimately reached the competency threshold. The third group completed the self guided mindfulness training and 4-day program training. This group reached 63% of participating teachers making the competency threshold. The last group completed self guided mindfulness training and a 1-day program training. 38% of the teachers in this group reached the competency threshold. The study found that the self guided mindfulness training with the 1-day program training was the most cost-effective at about 1,270 USD per teacher reaching the competency

threshold (Crane et al., 2020). The study calls attention to the fact that effective training and training that promotes teacher buy-in is not necessarily without large expense. While other facets of yoga and mindfulness in schools can be inexpensive or even without cost, teacher training is an area in which cost can be dramatically increased.

In physical education

Physical education, in schools and school systems where it is offered on a regular basis, can be a good option for implementation of yoga or mindfulness based programs. A physical education setting is convenient for more physically challenging postures, and it allows for a mental shift for students from active classroom time to “yoga time.” In the *Journal of Physical Education*, there was a 2018 article about mindfulness during physical education. The authors stated this is regards to student stress and mental health, “regardless of whether a student comes from a lower socio-economic home or community, all students are under more stress than previous generations. In addition, in trying to relieve the stressors of students, physical education teachers have the ability to use lessons to focus on many factors of overall [health]” (Knothe and Martí, 2018). The authors suggest that physical education teachers have all the skills already to instruct students in the practice of yoga; stating, “physical educators have the teaching strategies and skills to apply different curriculum models that facilitate instruction at the psychomotor, cognitive, and affective levels of understanding” (Knothe and Martí, 2018). The authors also suggest that perhaps physical education teachers combining efforts with school counselors could help to teach students more effectively about mindfulness and self awareness.

Some strategies for more mindful physical education classes were suggested in a 2018 *Virginia Journal* article. The authors suggest that incorporating mindfulness into the “physical” part of physical education, “enables [students] to experience a form of education that enhances

their overall well-being” (Ruddy and McKay, 2018). The authors suggest that “mindfulness questionnaires” after physical activity can be a good way to get students to calm their minds, reflect, and refocus for the rest of the day. With an evaluation scale from rarely to almost always, students are asked to answer questions such as, “I notice the sensation of my body moving or sweating when I am jogging;” “I am aware of my feelings and emotions without having strong reactions to them;” “I do not rush through physical activities;” and “I can experience the present moment: *here and now*” (Ruddy and McKay, 2018). Additionally, the authors suggest that meditation practice could be a good addition to physical education; stating, “the beauty and simplicity of meditation is that you don’t need any equipment” (Ruddy and McKay, 2018). Meditation takes just a short amount of time, requires very little resources, and offers a wonderful opportunity for students to become more mindful of their thoughts and their judgement of their thoughts.

Introjective practices

Introjective motor practices are physical activities such as yoga, Tai Chi, and Active Global Stretching. The goal of introjective practices is to slow the pace of physical education and allow students to participate in activities that encourage mindfulness. In Spain, a study was conducted about the effectiveness of various introjective practices in regards to increasing student emotional regulation. 90 fourth-year students participated in intervention four days a week for six weeks in their regular physical education classes. The students took the Trait Meta-Mood Scale-24 (TMMS-24), which seeks to evaluate the emotional experiences of subjects, before completion of the intervention and following the intervention. Students’ scores for emotional attention, clarity of emotions, and emotional repair all increased significantly from the pre-test to the post-test with a 20.13% increase in mean pre-test and post-test results.

Interestingly, the data demonstrated that the increase in mean test results was significantly higher among girls than boys (Cañabate et al., 2020). The study indicates that physical education can be a successful conduit for mindfulness practice in schools, especially since most schools and school districts have the infrastructure in place to diversify the physical education experience. The authors state, “Applying introjective practices into physical education class might be an approach for stimulating self-awareness processes in primary schools that enables individuals to achieve emotional self-control” (Cañabate et al., 2020).

In school counseling and as intervention

Using yoga as a school counseling technique is one of the more popular ways to utilize school yoga and mindfulness based programs. A 2019 study interviewed ten school counselors who had implemented a yoga program in their schools in some way. The ten counselors each implemented their yoga programs in slightly different ways, providing insight into just how many different opportunities there are when it comes to creating and building a yoga and mindfulness program that works for an individual school. Some of the counselors reported using yoga intervention in group counseling settings. For instance, one counselor brought in a male yoga instructor for her boys’ group in which many of the boys did not have good male role models in their lives. The counselor hoped that yoga and a relationship with a male instructor would provide the boys with the example and support they needed. Another counselor at an elementary school used the Yoga 4 Classrooms curriculum for 10-15 minutes before she began her regular guidance class lessons. All of the counselors found that yoga and mindfulness practice was pretty accessible. One counselor stated, “I feel like sometimes we just overcomplicate things and counselors are always looking for good programs or ways to teach kids these things that yoga teaches, and it’s very simple and cost-effective. Like I said, all you

need is your body and your breath and you have all the tools you need within you, all ready to regulate yourself. If we could keep it that simple and teach kids how to use their internal resources—that's what yoga is" (Taylor et al., 2019). The awareness that yoga is really, at its core, just breathing and being, provides a freeing sense for many educators. Yoga can be a very effective counseling tool at very little or no cost.

As intervention

Though there are some drawbacks to intervention implementation, it can be a very effective method for students who need more emotional regulation and alternatives to traditional behavior management methods. One study featured 38 students, selected by their teachers as those students who sometimes struggled with behavior regulation, and the students would receive one-hour mindfulness intervention sessions. The students were presented with nine different mindfulness techniques and tools to deploy in their everyday life and to assist them in emotional and behavioral regulation. The students remarked after the conclusion of the study that they felt more calm and more regulated, and teachers could notice significant improvements in student behavior as well. They also stated that they enjoyed doing their mindfulness practice in smaller settings or even one-on-one with a teacher or a fellow student (McGeechan et al., 2019). This study provides evidence in favor of small group or individual intervention, not necessarily as opposed to whole student or individual classroom methods, but as an alternative to larger-scale programs.

General barriers to implementation

One of the largest barriers to implementation of school yoga and mindfulness based programs is that yoga and mindfulness is in some way religious. Particularly with the practice yoga, there is a perception that it is derived from Hinduism or Buddhism. In actuality, the

practice of yoga itself is not strictly religious and religious aspects have been added by many different religious practitioners. In Taylor et al., the authors state, “A looming barrier for yoga implementation in a school setting is the misconception that yoga is a religion. . . . Yoga is a discipline practiced by religions and offers a secular space for students to enhance their physical and emotional well-being without infringing on individual beliefs or values” (2019). The acceptance of school leadership and district leadership of school based yoga programs varies regionally in the United States. In fact, “some may still raise concerns of proselytising a religion to students within some Western industrialized countries,” but more and more people are coming to accept that the practice of yoga can in fact be a secular practice (Ergas, 2019). Ergas discusses in detail the issue of secularism in yoga and mindfulness practice in schools. Ergas suggests that the religious aspects are not necessarily a negative thing as they allow students to be exposed to different kinds of culture and religious experiences without feeling pressured or compelled to adopt them. He states, “As the following proposes, a possibly more effective way to render mindfulness *as* education, can be articulated based on certain interpretations of the core facets of the practice itself. This may offer a narrative that is not Buddhist, nor therapeutic-economic, but rather *educational*” (Ergas 2019). The idea that teaching mindfulness is just as educational as teaching math is an idea that may seem radical to some, but it is an effective way to counter complaints about secularism.

CHAPTER IV: RESULTS FOR STUDENT OUTCOMES

The review of the literature exhibited numerous student outcomes. Student outcomes of these yoga and mindfulness programs are important to focus on because they provide the “why” of implementing these programs. There are some areas of student outcomes which are more understood by the research than others. For instance, student outcomes in terms of achievement are harder to study than behavior outcomes due to difficulty of measurability. This chapter will examine student outcomes in regards to externalized behavior, internalized emotion regulation, and achievement.

Externalized behavior

One of the biggest benefits gained from the implementation of mindfulness based programs in schools is a reduction in classroom behavior issues. The benefit comes primarily in de-escalating anger bursts and calming down situations before they become punishable offenses. A 2019 study in the United Kingdom used semi-structured interviews to ascertain perceived student outcomes in regards to behavior. The participating students were aged 12-15 and consisted of a group of students who struggled with behavioral issues. One student in the study remarked, “Cause like I’ve calmed down I think and I would do [mindfulness] like, just calm down a lot. Since I’ve been doing [mindfulness] I haven’t got [sent out of class]” (McGeechan et al, 2019). While the study was not expansive, it does highlight the “golden ticket” that educators are hoping mindfulness based programs can provide. Preventing distraction and missed instruction as a result of behavior and punishment could potentially help provide the side-effect of increased achievement. Uninterrupted instructional time provided by mindfulness techniques may help to close the achievement gap between students who struggle with behavioral disorders

(such as ADHD) and students who do not. A study of 40 urban third graders in the United States used the 10-week *Yoga Calm* program. In post-intervention interviews, 67% of participating students stated that their behavior had changed as a result of their in-school practice of yoga. In fact, “Many things like concentration, focus, attention, being fidgety and antsy improved” (Thomas and Centeio, 2020).

Impact on anger and aggression

A 2019 study in Australia similarly studied the impact of the Journey to the Island of Calm program on classroom behavior. The Australian study was conducted in three schools in South East Queensland, located in low socioeconomic and disadvantaged metropolitan areas. In focus groups that were conducted alongside quantitative assessments, teachers discussed noticeable differences in student classroom behavior, specifically with regard to anger and self-anger regulation. One teacher remarked, “I have noticed over time, particularly in the second term, that I’m not seeing overt acts of anger, either words or actions in my classroom” (Cartmel et al., 2019). “Cooling off time” has been seen as a method of reducing irrational actions in the face of anger. Mindfulness based programs are providing more tools for teachers to help individual students regulate anger and reduce behavioral outbursts that negatively impact the instruction of all students.

Suárez-García et al. conducted a study among 73 third grade students who attended urban and middle socioeconomic status schools in Spain. The students were split into two separate experimental groups which received intervention at different phases during the trial period. Using the Evaluation System for Children and Adolescents (SENA), teachers assessed student aggression. In both trial groups, the average level of aggression fell in the first test post-intervention. While there was no significant change for the second group in the period

before intervention, the first group's aggressiveness actually increased in the period in which they were not receiving intervention (Suárez-García et al., 2020). The study contributes to the understanding of mindfulness and a reduction of aggressive behavior.

Impact on attentiveness

A 2018 study in an elementary school in Tel Aviv sought to determine if mindfulness practice would have an effect on student attentiveness. One hundred and one third, fourth, and fifth grade students participated in the study, completing two attention pre-tests and repeating the same two tests, which, for the experimental group, followed a ten week mindfulness program. The mindfulness program was conducted in small group settings with just 3-4 students per group. The students participated in a variety of mindful activities from the Mindfulness Based Stress Reduction method (MBSR). Some of the activities included mindful walking and eating, exercises, meditation, and yoga poses. The students were encouraged, but not required, to continue their mindfulness activities outside of the classroom. The two tests used to measure attention were the Continuous Performance Task (CPT) and the Conjunctive Visual Search Task. The CPT seeks primarily to measure sustained attention, asking participants to identify a specific shape out of several over a period of time. The Conjunctive Visual Search Task seeks to measure selective attention by having participants select a target from a grid over a period of 40 trials. The study found that there were statistically significant improvements in the experimental group's sustained and selective attention. There was a reduction in the error rate for the CPT among the experimental group only. For the Conjunctive Visual Search Task, there was a significant increase in accuracy among the experimental group with the 16 and 32 item grids (Tarrasch, 2018). While there are some limitations to this particular study, it indicates that both

sustained and selective attention can be improved with the practice of mindfulness among students.

A study in a Head Start preschool program, this time in the northeastern United States was conducted to observe the impacts of a mindful yoga program on student behavior regulation and attentiveness. The study was conducted among 89 children from ages three to five with 74% being African American. Three of the classrooms of trial students participated in the intervention in the fall and two of the classrooms participated in the spring. The study utilized the HTKS test to measure the impact on behavior regulation and the Attention Sustained Task (AST) assessment to measure the impact on attentiveness. The pre-test was administered before any mindful yoga intervention and the post-test was administered three months after completion of the eight week program. During the eight week program, students in the intervention group attended yoga with a certified instructor in the gymnasium twice a week. The sessions lasted 25 minutes each and consisted of a centering (or warm up) activity, a series of yoga postures, and a relaxation activity. The tests indicated statistically significant results among the intervention group in the fall. The group in the fall made statistically significant improvements in both behavior regulation and attentiveness (Razza et al., 2019). The study follows the pattern of similar Head Start preschool studies in indicating effectiveness of yoga and mindfulness programs on executive functioning in young children.

Internalized emotion regulation

The social-emotional impact of yoga and mindfulness programs in schools is a research area that is starting to gain traction. As more is understood about the importance of emotional intelligence in children, researchers have begun to turn towards new methods of encouraging and nurturing emotional awareness. K-12 education is no longer just a means to educate children

about the alphabet, algebra, and the periodic table of elements, but compulsory education is now an opportunity to produce emotionally intelligent members of society. A New Orleans study took place in 2018 with a sample size of 52 anxiety-prone third graders. The experimental groups participated in yoga and mindfulness sessions designed by Yoga Ed prior to the start of the official school day, while the control group went about business as usual. The experimental groups saw a 14.17 unit increase in the social emotional Pediatric Quality of Life Inventory (PedsQL), meaning that there was a statistically significant increase in emotional wellbeing. There was also a 7.43 unit increase in psychological PedsQL, perhaps indicating positive movement in regards to student anxiety and depression (Bazzano et al, 2018).

Emotional regulation and social-emotional awareness is something that can contribute positively to early childhood education. A study among kindergarten students used the MindKinder mindfulness-based program and a total of 144 mindfulness sessions over the course of six months. The study used the Behavioral Assessment System for Children, second edition (BASC-T2) to evaluate the effectiveness of the program on increasing social-emotional development. The BASC-T2 tests for five different categories of social-emotional wellbeing. Externalized problems (EXP) includes things such as hyperactivity, aggression, and behavioral problems. Internalized problems (IP) includes measures such as anxiety and depression. Academic problems (AP) focuses primarily on attention deficit, and adaptive skills (AS) measures adaptability, leadership, and social skills. The behavioral symptoms index (BSI) comprises hyperaction, aggression, anxiety, depression, and attention deficit. The study concluded that the MindKinder program yielded statistically significant reduced scores within the experimental group in the behavioral symptoms index, externalized problems, and academic problems subscales. Within those subscales, researchers noted reductions in “aggression,

hyperactivity, anxiety, attention deficit, and learning problems” (Moreno-Gómez and Cejudo, 2019). While the study yielded conclusive findings about these specific categories, there were no statistically significant changes to the test scores regarding internalized problems (excluding anxiety specifically) and adaptive skills. The study seems to indicate that students’ externalized behaviors are more easily changed by the practice of MBPs in schools rather than internalized behaviors or intrapersonal emotions (Moreno-Gómez and Cejudo, 2019).

The Cartmel study in Australia utilized the Children’s Hope Scale (CHS) to measure the impact of the Journey to the Island of Calm mindfulness program on student self-determination and goal setting. Motivation of individual students allows children to self-actualize the value of learning and school. The students that participated in the mindfulness program showed mean increases in the CHS scores which were significant. 60% of the students specifically had an increase in goal agency (or self goal-directed energy) scores (Cartmel et al., 2019). This study indicates that mindfulness can help students feel more empowered to achieve their academic and personal goals.

Increased self-regulation and awareness is perhaps one of the most desirable internalized outcomes of early childhood yoga and mindfulness programs. To aid in the development of students who have just begun their educational experience and are gaining their first glimpses of independence from their parents, preschool educators focus extensively on self-regulation. In a 2019 study in Oxford, MS, the impact of yoga and mindfulness programs on self-regulation was examined. The study was conducted by interviewing teachers at the school about their opinions on the efficacy of the school yoga program, which takes place primarily in its own special classroom. Teachers at the school overwhelmingly believed that the yoga program helped with self-regulation, specifically the emphasis on breathing. The study remarks that, “One of the

essential components of building their self-regulation skills was learning to take deep breaths to calm and relax the body” (Wolff and Stapp, 2019). The school uses the Conscious Discipline program as the model for its own mindfulness program, and there is a focus on using the breath to mindfully refocus and adjust to whatever situations students find themselves in. The study goes on to discuss further anecdotal evidence about students using the skills learned in their classroom yoga and mindfulness program to regulate their emotions both at and not at school, demonstrating the value and transitive properties of these practices (Wolff and Stapp, 2019).

Anxiety

In regards to general anxiety reduction, a 2019 literature review evaluated 40 studies prior to 2016 and found consistent improvements in anxiety. The studies were selected on the basis of showing some sort of effect on social emotional learning. Twelve of the 40 total studies showed a positive correlation between mindfulness based programs and a reduction in anxiety (Feuerborn and Gueldner, 2019). This indicates that a large portion of the research on school mindfulness based programs existing in the early part of the 2010s demonstrated positive effects in regards to a reduction in anxiety. Furthermore, some studies have indicated that practicing yoga could have a reducing impact on cortisol levels (and simultaneously anxiety) in children. A 2017 literature review interpreted the results of eight studies about classroom yoga practice conducted prior to 2016. In one reviewed study, the author remarked that “2nd graders showed significant drop in cortisol levels: better able to deal with stress/anxiety” (Nanthakumar, 2017). Because of the postures and the concentration required to execute them, “yoga may have an immediate down-regulating effect on hypothalamic-pituitary-adrenal axis and sympathetic nervous system, thus producing a calming effect on the body and mind” (Nanthakumar, 2017). This indicates that the physical practice of yoga could have even more tangible and noticeable

reductions on student anxiety than just mindfulness and mindful thinking practices. While both are valuable, the potential significance of cortisol production reduction associated with the physical practice could provide a real breakthrough.

The impact of mindful breathing exercises on the stress levels of elementary students was examined extensively in a 2020 German study. The study consisted of 106 students relatively evenly distributed between grades one and four (ages five to eleven). All of the students were wearing “smart bands” which monitored skin response and temperature, indicating specific emotional responses to different scenarios. All of the students completed a “Stroop task” activity that was completed in three parts and was designed to put the students under stress. The control group watched a simple drawing video prior to the start of their Stroop tasks while the intervention group participated in teacher-guided mindful breathing. The results of the study indicated that the students in the intervention group, who participated in mindful breathing prior to completing the exercises, actually had higher levels of perceived stress during the Stroop tasks (Kurth et al, 2020). This finding contrasts with previous research which had primarily suggested that mindfulness and mindful breathing have a reducing effect on situational stress levels. The authors of the study go on to report that an in-depth look at the results indicated that the intervention group of students actually had lower levels of perceived stress when the difficulty of the task was increased and announced. The control group indicated higher levels of stress when the increase in difficulty was announced (Kurth et al, 2020). Therefore, the study indicates that mindful breathing has some reducing impact on expectation of stress.

Addressing test anxiety is a phenomenon on the rise with the ever increasing amount of testing that K-12 students are expected to complete. Mindfulness techniques are beginning to be used to help students cope with test anxiety and calm their minds before big examinations.

Researchers in Canada investigated whether mindful coloring proved to reduce test anxiety in 152 students in grades 4-6. The researchers divided the students into two groups: one in which they colored a mandala (specifically designed to elicit mindfulness), and one in which they colored freely on plain paper. Researchers used the STAIC-S test to measure student anxiety pre and post-coloring, the Mindfulness Attention Awareness Scale (MAAS) to measure student mindfulness pre and post-coloring, and the Child and Adolescent Mindfulness Measure (CAMM) to measure dispositional mindfulness post-test. The results of the study did not indicate any statistically significant difference between the group coloring the mandala and the group coloring freely. However, there was a reduction in anxiety among both groups after the completion of the 15 minutes of coloring. The study indicates that coloring, guided or not, can increase state mindfulness and reduce test anxiety (Carsley and Heath, 2019). The break from thinking about the impending test and just allowing students' minds to wander as they get creative is an easy and effective way to reduce test anxiety.

Perfectionism

Perfectionism is a form of anxiety that manifests frequently in gifted and academically talented youth. Much is misunderstood about the impact of perfectionism from a young age on an adolescent's overall struggle with anxiety and mental health, but even less is understood about the ways to combat perfectionism in particularly vulnerable young students. Using a mindfulness based program to attempt to combat perfectionism in gifted students was the focus of a 2020 study. The study was conducted at an International Baccalaureate middle school, where the students were aged 11 to 14. The 42 participating students used the Child-Adolescent Perfectionism Scale to determine levels of self-oriented perfectionism (SOP) and socially prescribed perfectionism (SPP). The study ultimately revealed a large impact of mindfulness

practice on SOP, reducing student scores on average from the pretest to the post-test by 4.44 points. The authors state, “Mindfulness may be a particularly well-suited intervention for perfectionism due to the ability for mindfulness to reshape cognitions as well as to enable self-regulation by directing one’s attention to the present. It is possible that by helping youth to notice and accept their cognitions, emotions, and somatic experience without judgement, they may have learned to apply their newfound non-judgemental frame of mind to their perfectionistic cognitions” (Olton-Weber et al., 2020). This elevated understanding of emotion and judgement can help to reduce gifted student anxiety surrounding perfection.

Depression

The 2019 Feuerborn and Gueldner literature review found that a number of studies conducted prior to 2016 saw constructs between mindfulness based programs and depression or general sadness. Out of the 40 studies evaluated, 12 indicated that there was a definitive relationship between mindfulness based programs in schools and a reduction in depression or general sadness (Feuerborn and Gueldner, 2019). In addition to mental health struggles such as anxiety being addressed earlier and earlier in schools, depression and general sadness are gaining the focus of researchers and educators. Potential conclusive correlation between mindfulness based programs and a reduction in depression is a topic that continues to be prevalent in studies regarding the efficacy of these programs.

Impact on executive functioning in preschoolers

Executive functioning (EF) skills have been determined to have a significant impact on student success in the classroom from a young age. Researchers have started to examine ways to improve EF skills in order to show advancement in young children in “attention, working memory, inhibition, shifting, and social skills” (Wood et al, 2017). A study was conducted in a

university preschool in an urban southeastern US community. The study sought to determine if participation in the “Mini-Mind” MBI would increase EF skills in preschoolers. The Mini-Mind sessions occurred over a six week period for 25 minutes at a time. The sessions included a variety of different activities including yoga and mindful breathing. The participants were divided into two cohorts: cohort one receiving intervention in the fall and cohort two receiving intervention in the spring. While there was no statistically significant difference overall between the two cohorts, the “effect sizes revealed small-to-medium effects in favor of cohort 1 (intervention) overall..., as well as on attention..., working memory..., inhibition..., and shifting” (Wood et al, 2017). Although a majority of the results were not statistically significant, teachers perceived and rated participating students’ EF skills higher than the average students in the class.

In Head Start preschool classrooms in Missouri, the impact of MBPs on executive function was also studied. The OpenMind mindfulness curriculum was used in this study. There were 262 participating preschool students (ages 3 to 5) with 143 in the intervention group and 119 in the control group. The researchers used multiple methods to measure attentiveness and EF skills including the Heads Toes Knees Shoulders (HTKS), Go/No-Go (GNG), and Behavior Rating Inventory of Executive Function- preschool version (BRIEF-P). The GNG tests yielded no discernable differences between the control group and the intervention group. On the other hand, the HTKS tests showed significant differences both between the control group and intervention group, as well as within the intervention group itself pre and post-intervention. While the control group did not show much difference in the average scores between their two tests, the intervention group (participating in the OM programming between tests) showed improvement by up to almost seven points. These significant improvements after intervention suggest that students in the intervention group showed increases in “inhibitory control, working

memory, and attention” (Jackman et al, 2019). In regards to the BRIEF-P scale, there were no significant changes in EF skills over the course of the experiment or between the different groups. However, the mean scores of the intervention group were more positive in the areas of “self-control, shifting attention, and emotion regulation” (Jackman et al, 2019).

A study at two low-income preschools in Houston and Washington, DC also investigated the impact of mindfulness based programs on executive functioning. The study included 218 students, a majority of which were either Hispanic or African American with median family incomes between \$25,000 and \$50,000 a year. One of the only studies focused on schools that serve primarily students of lower socioeconomic status, the authors state, “EF skills may be especially important for children from lower socioeconomic backgrounds, in part because of the bidirectional relations between EF and stress” (Zelazo et al, 2018). The study contrasted a “mindfulness and reflection” group with both a literacy intervention group and a control group. Similar to previous studies, researchers used the HTKS test to ascertain impact on executive functioning. The researchers also used peg tapping and the Minnesota executive functioning scale to judge changes in executive functioning. Furthermore, the researchers used teacher surveys to gain a sense of the impact of the mindfulness program on things outside of executive functioning, such as classroom behavior. The EF composite score indicated that the students in the mindfulness and reflect group outperformed both the literacy and control group in EF skills (Zelazo et al, 2018). While there is not enough research to definitively say the yoga and mindfulness in the preschool classroom improves EF skills, MBIs certainly do not negatively impact EF skills.

Impact on achievement

A 2017 US study sought to determine if mindful breathing had a direct effect on reading fluency rates. Reading fluency, in this case, was measured by “words read correctly per minute” or the WCPM score. The study included just four students, grades three through five, who were identified by their teachers as frequently inattentive while reading. The students received reading fluency intervention alone as the control set and reading fluency intervention along with practice of MindUp mindful breathing exercises for the conditional set. The study did not indicate any statistically significant differences between the control reading fluency intervention and the mindful breathing reading fluency intervention. WCPM scores across all of the students remained relatively steady regardless of whether or not mindful breathing exercises were occurring (Idler et al, 2017). Despite the limitation of the size of the experiment, it is important to note that over generalized conclusions about the effectiveness of mindfulness practice at closing achievement gaps must be taken with a grain of salt. Even with a set of students whose struggles with reading fluency can be attributed, at least in some part, to lack of focus, mindfulness is not an end-all-be-all for achievement improvement, but a tool.

CHAPTER V: RESULTS FOR TEACHER AND STUDENT OPINION

One of the most important aspects of successful programming in schools is acceptance and buy-in from both educators and students. Teacher and student opinion on school yoga and mindfulness based programs plays an important role in understanding overall effectiveness of these programs. The majority of teachers and students cited in the literature found are some benefits to yoga and mindfulness school based programs. This chapter will examine the acceptability of these programs by both teachers and students and the benefits perceived by students.

Teacher Opinion

The OpenMind mindfulness based program was used in Head Start classrooms in Missouri, and a study was conducted about the acceptability of the program among the teachers facilitating the program. Acceptability was gauged by an eight question, 5-point Likert scale questionnaire. Acceptability among teachers was defined by a few different concepts including implementation, simplicity, and personal benefits. Among the 13 teachers who completed the questionnaires, all of them said that “the OM 7 Daily Practice activities were beneficial for the children in my classroom” (Jackman et al., 2019). The Daily Practice activities are grounding mindfulness activities that 11 of the 13 teachers felt they could “confidently” implement in their classrooms. However, the teachers did not find that an increase in attention on student mindfulness activities gave them the opportunity to integrate meditation into their daily routines at school. In fact, only four of the 13 teachers felt that “daily meditation practice was easy to integrate into my workday.” Similarly, most of the teachers did not agree that, “the daily meditation practice helped [her/him] to be more present for the children in my classroom” (Jackman et al., 2019). The data in the study indicates that while teachers can see that

mindfulness activities are beneficial to their students, they do not always feel that they are beneficial for them. While this is just one study, lack of teacher personal buy-in in the implementation of school mindfulness based programs could lead to real gaps in efficiency in these programs.

One of the most important aspects of understanding teachers' perceived value in school mindfulness based programs is their opinion on student buy-in and engagement with the material. The Journey to the Island of Calm pilot study in Queensland, Australia used focus groups and teacher journals to gauge opinion on the effectiveness of the program. One teacher wrote in her journal, "I am so intrigued and pleased with how the level of engagement from my students has improved each session. They seem to be more connected and accountable in regard to the topics being covered. My students are a lot more comfortable with talking about self-awareness and being more considerate of how others' feeling and personalities differ" (Cartmel et al., 2019). The shift that occurred over the duration of the program shows student buy-in as time progressed, something that is essential to program success.

Student Opinion

With the Wood et al. study of the impact of mindfulness based programs on executive functioning in preschool children, there were also questions posed to the children about the acceptability of the mindfulness program. Designed to help understand the opinion of the children with regards to the mindfulness exercises they were completing in class, the questions were answered via a Likert scale from 1 (did not like at all) to 5 (liked a lot). Overall, the students indicated that they enjoyed the sessions with a mean score of 4.04 (Wood et al., 2018). Students scored the "touch session" even higher than the average, at 4.54. On the other hand, the second "emotions" session rated the lowest of all the sessions with an average at 3.62. In

supplemental interviews, the students were asked what they specifically liked and disliked about the sessions and which topic and activity sessions they preferred. Of the twelve unique topic sessions, the students enjoyed, on average, 5.67 of them. Of the remaining topic sessions, most of the students did not outright dislike them (only 0.81 average dislike rate), but they merely felt indifferent about them. The students particularly enjoyed the activities they participated in that were related to taste, but they particularly disliked the activities related to breathing (Wood et al., 2018). This data demonstrates the idea that students, particularly the youngest students, are more engaged by mindful activities that engage their senses, but the data also demonstrates that students in the study were overall satisfied with the mindfulness sessions.

The 2019 Stapp and Wolff research of the yoga program at the Willie Price Lab School on the University of Mississippi campus provided insight into the perceived acceptability of yoga among preschool students. At the preschool, students go to a separate yoga classroom with a certified yoga teacher once a week where they practice a modified ashtanga vinyasa style of yoga. Wolff and Stapp conducted group interviews with the students with props and in settings in which the children were familiar to make them as comfortable and open as possible. During their interviews, students were invited to practice yoga outside and share with the researchers some of their favorite postures and mindfulness exercises from their yoga classes. Following the interviews, the researchers determined that, “the vast majority of children responded with positive remarks” about the yoga program (Stapp and Wolff, 2019). When asked how yoga makes them feel and what they enjoyed about it, students responded, “that yoga helped them to stay calm and relax” (Stapp and Wolff, 2019). On the other hand, some students responded that savasana, or corpse pose, was the most difficult or when they felt the most anxious (Stapp and Wolff, 2019). It is interesting, but not entirely surprising, that this time of stillness and peace is

time that makes some young children feel nervous or uncomfortable. Perhaps with repetition and continued practice, a pose such as savasana will eventually become more comfortable and even relaxing for the children.

A study was conducted in the Western United States among six schools in three different districts in an attempt to better understand students' perceptions of their school yoga program. The students were aged four to six, and they completed yoga lessons with guided postures and breathing exercises. Teachers presented videotaped yoga lessons to their students six times weekly, typically either before circle time in the morning or following lunch. Video recordings were made of the lessons to use in the data collection process. Researchers pulled the students out of class to complete research surveys and then more generally asked them for their opinion on the yoga interventions. Students overwhelmingly seemed to enjoy the yoga sessions. In fact, "When research assistants asked if children liked doing the yoga, 93.90% responded positively" (Rashedi et al., 2019). The students also seemed to enjoy the breathing exercises on the whole. One student stated, "They made me feel good, because they help you get more strong" (Rashedi et al., 2019). The researchers note that many of the students considered yoga to be a time when they can be imaginative in poses such as down "dog," where they "wag their tails" (Rashedi et al., 2019). If this kind of imaginative thinking can draw children into the practice of yoga, the physical, mental, and emotional benefits, whether subconscious or not, will keep them coming back for years to come.

Perceived purpose and benefits

The Queensland, Australia Journey to the Island of Calm pilot program used student focus groups to study the perceptions of the students in the program. The study participants were nine to twelve years old, so having them meet in groups with facilitators was determined by the

researchers to be the best method of receiving their honest feedback. One of the questions the researchers used to ascertain the effectiveness of the program was “Why do you think you do that activity [breathing],” and students responded with “calms us down” and “to relax us” (Cartmel et al., 2019). Researchers also asked the participants to describe what the program was about. Students stated that the purpose of the program was “to calm yourself so you don’t get in trouble,” “teach you how to calm yourself down,” and “to not give up” (Cartmel et al., 2019). The results of this focus group suggest that even younger students understand and perceive benefits of mindfulness based programs in their schools.

In a Norwegian study, adolescents from 16-17 years old at three different secondary schools participated in a Balance in Life (BIL) intervention program in general education class. The intervention program sought to teach students methods to mindfully cope with stress, manage time, self-regulate their learning, and refine their social skills. Researchers interviewed three groups of eight students which were reported by their teachers and a perceived school stress assessment to be among the most stressed out students in the study. The researchers helped to get the students comfortable by first asking them about their experiences with stress at school and how they have dealt with it previously. Researchers then moved to discussing the intervention and what students perceived as the impacts the interventions had on their stress levels and everyday choices. One student said of breathing and meditation, “Not thinking about... the future and the past, but think more about what happens right now, was pretty important. And don’t focus too much on what you have done or what you are going to do, but more on what you can do now. It helps you concentrate a bit... just be in the present moment” (Theraldsen, 2019). Another student said that the exercises they worked on in intervention helped them realize the relative smallness of things like grades. The student said, “Before, grades

were everything, and then I suddenly got a really bad grade in a final-year course, and I'm just 'ok, what now?', kind of. And then I started to think that 'Well, I'm still alive! I'm not dead!' So I was a bit more kind to myself" (Theraldsen, 2019). The student feedback from the study shows that the mindfulness interventions have an impact on the way students perceive stress and deal with day-to-day feelings of doubt and failure.

Parental perceived validity of mindfulness based programs

A 2019 survey of parents whose preschool aged children participated in the Open-Mind Korea school mindfulness based program found that a majority of parents thought the program was socially valid. The survey went out to 47 parents, and 40 of them completed the survey. The questions covered a range of topics, but they were primarily focused on parental perceptions of the program and its effect on their individual student. 35 of the 40 parents responded that "The OM-K program teaches skills that my child can use at school and at home" (Kim et al., 2019). This indicates that, at least in the opinion of some parents, school mindfulness based programs provide students with tools that they can use at home as well. The majority of the parents (33 of them) also stated in the survey that they would recommend the OM-K program to other parents, indicating enough confidence in the program to believe it to be beneficial to others as well.

CHAPTER VI: DISCUSSION AND POLICY RECOMMENDATIONS

This chapter will examine and further discuss the findings of the results chapters, hoping to paint a clear picture of best practices as suggested by the literature. The discussion will be broken down into three main sections to reflect the main sections from the results chapters: implementation, outcomes, and teacher and student opinion. This chapter will then go on to discuss what policy options would be viable for increased integration of yoga and mindfulness into preschool and K-12 education in the United States.

Discussion: Outcomes

Classroom behavior

One of the most significant outcomes of yoga and mindfulness based programs in classrooms is the impact these programs have on student behavior in the classroom. Behavior disruptions during the course of the school day have an impact, not only on the child acting out, but all students in the classroom. When a teacher has to take time to discipline one student, the others lose out on time that could have been spent continuing the lesson of the day. The literature suggests that using yoga and mindfulness in the classroom can help students to self-regulate and reduce incidents of classroom disruption (McGeechan et al, 2019). Furthermore, many students reported that they felt a change in their behavior outside of the classroom as well (Wolff and Stapp, 2019). This unintended consequence helps school to do what it was created to do, educate children and prepare them to be effective and productive members of society. The self-regulation that comes from practicing yoga and mindfulness at a young age can be carried throughout the years. Studies have also linked yoga and mindfulness practice to reductions in aggressive behavior and anger, two things that contribute to violence and crime in adulthood. Giving

children more tools to work through their anger and aggression can only be a positive thing as they move into adolescence and adulthood.

Anxiety and stress

Anxiety left untreated in childhood can lead to depression, substance abuse, and even suicide in adolescence and adulthood. Suicide is the second leading cause of death among people ages 15 to 24, and more than 90% of people who die by suicide have an underlying mental illness (American Psychological Association, 2008). Treating mental illness early is the best preventative measure for serious struggles later in life. Research on the impact of yoga and mindfulness programs in schools has repeatedly shown reduction in anxiety. Some research has also shown the practice of yoga to be connected with reducing levels of cortisol, the chemical connected with anxiety. Yoga and mindfulness practice in schools exposes children to healthy ways to deal with their feelings. Besides that, setting aside time during the school day to just let children breathe gives them the opportunity to move their thoughts away from the stress of assignments and everyday pressures.

Test anxiety is a form of situational stress that often manifests itself in students. With the increase in standardized testing and pressure from local and state governments for students to perform well on them, test anxiety continues to increase (Segool et al., 2013). Teachers looking for creative ways to help their students through test anxiety can use mindfulness techniques. Even mindfulness activities that do not feel like meditation or yoga can provide benefits for students. Something as simple as a coloring activity can help students re-center and focus on doing their best on tests rather than worrying overly about the results. More broadly, mindfulness activities have been shown to reduce many kinds of situational stress (Kurth et al, 2020). Mindful breathing has been used to help children get through stress-inducing situations, giving

them another tool to carry with them as they grow older and stress becomes a more frequent part of their lives.

Perfectionism

Perfectionism is a problem for a lot of children, particularly high achieving students. Societal and familial pressure to perform well in school causes many children to feel like they need to be “on” all the time. Studies have shown that for high achieving middle school students, mindfulness can be an effective way for them to deal with feelings and stress associated with perfectionism (Olton-Weber et al., 2020). Mindfulness allows these students to stay present, avoiding thoughts of the future or of the past. It also helps them to use a less judgmental approach with themselves when they make mistakes. Perfectionism in high achieving children can grow into severe anxiety and obsessive compulsive disorder, but the high-functioning nature of perfectionism allows it to frequently go overlooked by both teachers and parents. Giving young students skills to combat perfectionistic thoughts and actions can better prepare them for the inevitable mistakes and failures they will make later in life.

Executive functioning

Increased attentiveness during the school day is another desired outcome of yoga and mindfulness programs in schools. In order for younger children to achieve higher levels of attention, their executive functioning skills need to be improved. Several studies examined the impact of mindfulness based programs on preschoolers’ executive functioning. Each of the four studies included in the systematic literature review showed at least perceived executive function improvements, or, even when there was no statistical significance to the change in executive function, teachers perceived an improvement among the mindfulness intervention group. The studies each suggested improvements among the intervention groups in working memory and

attention, two things that are important to overall executive functioning. Two of the studies included in the systematic literature review studied Head Start preschools which, “promote school readiness for children under five from low-income families through education, health, social and other studies” (U.S. Department of Health and Human Services, 2021). A third study was specifically conducted in low-income preschools in Houston and Washington, D.C. The included studies indicate that mindfulness based programs in under advantaged preschools can be effective at increasing overall student performance. Executive functioning in children has a direct relationship to their performance in the classroom as they get older. With disparities between communities flushed with their own money and communities dependent on state and federal supplemental funds, options to increase achievement in inexpensive ways are desirable. For a long time, “experimental” programs such as a preschool yoga class were only available at private, holistic preschools (like a Montessori or Waldorf preschool), but they are now available to a much broader audience of children. These types and other experimental education methods could close the achievement wealth gap for less money than some may think.

Social-emotional impact

Increased emotional intelligence is another result of yoga and mindfulness programs that many educators are hoping for. One study, which used the Yoga Ed yoga and mindfulness program, showed specifically an increase in social-emotional awareness, indicating an increase in emotional intelligence (Bazzano et al, 2018). This increase in emotional awareness and regulation led to positive movement in regards to student rates of anxiety and depression. More emotional awareness from a young age can help students to understand, regulate, and manage their feelings in a way which is positive and healthy for them. Another study similarly researched the impact of mindfulness based programs on kindergarteners’ social-emotional development.

The kindergarteners made the most gains in “externalized problems” which included hyperactivity, aggression, and behavioral issues (Moreno-Gómez and Cejudo, 2019). This reflects previous studies which have noted that behavior regulation is perhaps the most significant result of yoga and mindfulness based programs in schools. The kindergarteners also made statistically significant gains in the behavioral symptoms index (hyperaction, anxiety, depression, attention deficit) (Moreno-Gómez and Cejudo, 2019). While the study did not conclusively show that students experienced less anxiety or depression, as the internalized problems score did not change in a statistically significant way, the changes in the BSI indicate that they can at least regulate those emotional experiences in a more effective way. While emotional regulation is an important step, at some point, something has to be done about students’ emotional experiences.

Achievement

The issue of achievement is one of the most hot-button issues when it comes to any sort of education reform and school curriculum development. In the era of weekly achievement benchmarks, teacher evaluations with pay consequences, and standardized testing, student performance in school is more important than ever before. Any program or curriculum that is seen to produce more achievement is immediately accepted as the best option for students. There have been few studies on the effectiveness of yoga and mindfulness programs on increasing achievement. Creating an effective research program to investigate the direct impact of yoga and mindfulness based programs on achievement would be extremely hard to do. Schools which currently use whole school mindfulness based programs could examine what happens to their standardized test scores as they continue to use the MBP, but there is no way of really distinguishing that mindfulness practice is the only variable between the trial years. Although it

is difficult to truly measure the impact of MBPs on achievement, the other areas known to be impacted by these programs could influence achievement indirectly. Increased behavior regulation probably has the best chance of having an impact on achievement. When students behave in class, they stay in the classroom, and they keep learning. With fewer behavior distractions, there is increased focus and learning among all students in the class. Mindfulness based programs also help attention, which is necessary for retention of information. Achievement gains could be positive side effects of yoga and mindfulness based programs in schools.

Discussion: Teacher and Student Opinion

I will now discuss implications of the literature surrounding teacher and student opinion on school based yoga and mindfulness programs. It is important to understand and draw conclusions from the way teachers and students describe their experiences. Their experiences and opinions provide valuable insight into the effectiveness of these programs, as well as avenues for growth.

Teacher buy-in

Throughout many of the studies, it was evident that teacher buy-in was an important factor in the success of school yoga and mindfulness programs. Teacher willingness to believe in the benefits of these programs has an impact on how effective the program ends up and how the students feel about it. Students take their cues from their teachers, and if a teacher seems disinterested, students will be disinterested as well. While teachers do not necessarily have to integrate yoga or mindfulness practice into their daily lives to be effective at teaching it to their students, it certainly helps them to feel more confident in their ability to instruct and assist students. Many teachers also felt that integrating daily mindfulness practice into their lives helped them to feel more present and focused during the school day. Teacher buy-in with yoga

and mindfulness based programs in schools can also be increased by students who show real improvement and interest in the programs. Teachers take much satisfaction from students who are passionate about a subject or show improvement. Student improvement provides teachers with a sense of self-worth and value, and this is no different with yoga and mindfulness based programs. Ultimately, teachers who buy-in to the value of yoga and mindfulness in schools will not just be setting a good example for their students, but they may find that there is a significant personal benefit in the practice as well.

Student buy-in

Studies strictly focusing on student enjoyment and acceptance of yoga and mindfulness practice are relatively few and far between. With child subjects, it can be hard to do opinion studies that give an accurate picture of how children feel, since they do not always have the necessary communication skills (Docherty and Sandelowski, 1999). From the relatively small sample included in the literature review, students seem to enjoy both yoga and mindfulness programs overwhelmingly. Preschoolers enjoyed their mindfulness activities, especially those mindfulness activities that included touch and other sensory engagement, but they cared less for those activities related to breathing or emotions. The study indicated that activities that engage young children's senses and provide them with more stimulation may be more effective. This will subconsciously introduce them to mindfulness concepts without overwhelming them.

When it comes to yoga practice, students from the limited sample were equally as fawnable. Preschool students in one study were open about their favorite postures and were eager to share with researchers how they felt about yoga class. Most of the students felt positively about their yoga practice. Although some poses, such as savasana, made the students uncomfortable, most postures helped students to feel more relaxed (Stapp and Wolff, 2019).

Other students in a different study also felt positively about their yoga intervention. This study made yoga more accessible to the young students by asking them to be imaginative and creative during their yoga practice. Any way that yoga and mindfulness practice can become more accessible to children is a positive thing. This imaginative thinking during yoga is a way of practicing mindful yoga that is understandable and accessible to young children.

Perceived purpose and impact

Students seem to have a good understanding of the purpose of yoga and mindfulness practice in their schools and the impact that these programs have on their everyday lives. Students generally understand that the purpose of these programs is for them to calm down and regulate their emotions. They also seem to understand that control over their emotions and keeping a cool head keeps them out of trouble, and that teachers and administrators want to give them tools to stay out of trouble. While younger students have this basic understanding of the value of mindfulness practice, older students are more cognizant of the benefits and can see them more clearly. Older students can recognize the use of mindfulness to reduce stress levels and refocus their attention. Since anxiety and stress are struggles that tend to plague older students more often, it makes sense that they would recognize an impact on their stress symptoms. Older students felt that mindfulness helped them deal with self doubt and thoughts of failure. Similarly to gifted younger students, older students felt that mindfulness gave them the space to take risks and accept grace when they fail. For the most part, students perceive the same benefits of yoga and mindfulness practice that evaluative studies determine to be the benefits of these programs.

Discussion: Implementation

Evaluating methods of implementation given in the literature provides essential information to educators who want to begin their own school based yoga or mindfulness

programs. There is not one definitive answer when it comes to choosing the best method of implementation, but individual schools and districts should review the options and select the one that works best for their individual needs and desired outcomes. I will discuss the differences, benefits, and disadvantages of the whole school, individual classroom, physical education, counseling, and intervention implementation methods.

Whole school

Whole school implementation of a yoga or mindfulness program is one of the most effective methods, since it reaches the most students. The whole school method also makes sure that no one feels left out, or alternatively, singled-out by yoga and mindfulness practice. Whole school yoga and mindfulness programs put everyone on a single playing field with the same opportunity to buy-in and gain. On the other hand, whole school programs require a high level of leadership buy-in. Even if principals, counselors, or some teachers are strongly in favor of a whole school yoga program, it falls on each and every teacher to promote and implement the program. When teachers work well together, discuss what works and what does not work collaboratively, and individually buy-in to the program, whole school programs implemented in regular classrooms can be highly effective and relatively inexpensive. The other whole school option is a designated mindfulness or yoga studio classroom. This is a good option for elementary or preschool students, but not very practical for older students. The more students in the school, the harder it is to make one classroom work for a mindfulness program. The benefits of a designated space are the ability to have a professional instructor, separation from the thoughts and feelings that happen in the traditional classroom, and designated time for mindfulness practice. However, having a designated space and instructor is a more expensive approach. Ultimately, whole school methods are not a good fit universally, because it is

important for the whole school community to be on board and that cannot happen in the culture of every community.

Individual classroom

The individual classroom method seems to be the most practical way to implement yoga and mindfulness programs in schools. This way, individual teachers are able to pick and choose what they feel will work for their students. There are so many different curricula methods and lesson plans available from different school yoga and mindfulness providers. Professional development trainings are available to teachers which make them more effective at instructing their students and providing them with even higher quality practice. While individual classroom yoga and mindfulness practice can be implemented in every classroom within a school, it can also be used on a teacher-by-teacher basis. If an individual teacher seeks to implement yoga and mindfulness in his or her classroom, he or she is clearly bought-in to the idea, which is critical for an effective program. Another benefit to implementing in the individual classroom is that teachers can have students take yoga and mindfulness breaks at any time it would be beneficial. Yoga and mindfulness could be used before a test, when students are acting particularly rowdy, or when students just need a break. Keeping students in their normal environment for yoga and mindfulness practice can help them feel more comfortable with it, and having their regular teacher instruct them provides a sense of trust.

In physical education

Physical education provides a ready made environment for practicing yoga and mindfulness. Many schools already have some sort of yoga unit in physical education, but they often last only a couple of weeks and generally are not interactive taped lessons. It is widely understood that physical education and activity during the school day is positive for students.

High quality yoga and mindfulness following physical activity can be an added benefit. Even if just for the last ten minutes of physical education students practiced mindfulness, there would be benefit. Adding mindfulness practice to physical education does not require any additional equipment, gear, or instructors. It is cost effective and fits into an existing time frame. Students react positively to introjective practices in physical education, and they enjoy trying new things. Introducing students to different types of intervention during physical education can give them more tools for mental wellness as they get older.

In school counseling and as intervention

Using mindfulness in school counseling sounds obvious, but it is not prevalent. Counseling is a good place to start with yoga and mindfulness implementation in schools, since counselors typically buy-in to the idea that yoga and mindfulness can be effective. Counselors can use it with individual students, in group counseling, or in guidance classes. The goal of school counselors is to help students succeed at the highest possible level in school, and those who have used yoga and mindfulness find it to be cost effective, easy to implement, and beneficial for students.

Intervention is a viable option for implementation of school yoga and mindfulness programs, but it is not as desirable as some other methods of implementation. The main drawback to yoga and mindfulness as intervention is that it singles out certain students and makes yoga and mindfulness practice almost seem like a punishment. For yoga and mindfulness practice to be effective at regulating student behavior, students need to have a positive perception of the practice. Anytime the word “intervention” is used, students immediately feel less enthusiastic about whatever it is they are doing. Intervention seems like a negative word at its core, indicating that there is behavior that needs to be changed immediately. Universal programs

do not call out individual students, but they include everyone even those who need it most. When those who need intervention practices most see other students participating and having fun, they will be more willing to participate and enjoy themselves. While intervention programs can be useful if they are all that are available to a school, they are not the most effective when it comes to overall outcomes.

Barriers to implementation

The biggest barrier to implementation of yoga and mindfulness programs in schools is the question of whether or not it follows the secular requirement of public schools. While yoga is not a religion and does not follow one particular religious tradition, the perception of yoga as religious practice has sparked debates in many communities across the country (Brown, 2019). Some communities struggle to agree on what should be taught in schools about the history of the five major religions. Therefore, parents in these communities may feel that the practice of yoga favors one religion over another or teaches their children to follow Eastern religions. Yoga and mindfulness programs and curricula which market themselves to schools tend to promote themselves as “secular” yoga to avoid this backlash. The problem with “secular” yoga is that of whether or not one believes that yoga has value without some sort of religious context. While not all, or even not many, who practice yoga in the United States also practice Hinduism or Buddhism, there is an understanding that yoga involves religious elements. For instance, some phrases and words are used which draw from Eastern religious traditions. Essentially, the community at large must be understanding and accepting of the reasoning behind the practice of yoga and mindfulness in schools for a school to have a successful program.

Policy Recommendations

It is difficult to recommend just one course of action for implementing yoga and mindfulness in schools on a larger scale as implementation is unique to each community and each school. What is known, however, is that these programs can be increasingly beneficial to combating stigma around mental health issues, treatment, and child/adolescent social-emotional intelligence. It has been pretty well demonstrated that these programs certainly do not have any significant drawbacks and have limitless potential benefits. School yoga and mindfulness programs should therefore be more accessible.

The federal government, in the grand scheme of things, does not take a very active role in education. Even with regards to funding, the federal government only accounts for roughly 12% of K-12 education funding (New America, 2016). Most of the money provided by the federal government is provided via grants and aid to disadvantaged districts. The US Department of Education funds grants for a number of programs, including grants for the education of Native Alaskans, Arts in Education, Javits Gifted and Talented Education, and Teacher and School Leader Incentives (U.S. Department of Education, 2021). The best way for the federal government to encourage expansion of school yoga and mindfulness programs is to designate funds specifically for these types of programs. Creating a grant just for yoga and mindfulness education will show states and districts that the federal government is willing to experiment with new kinds of teaching and learning. Similar to the Javits Gifted and Talented Education grant program, a grant for yoga and mindfulness programs in schools should first look to provide additional funding to those districts which qualify for the Elementary and Secondary Education for the Disadvantaged Block Grant (ESED) (U.S. Department of Education, 2021). Studies have shown that yoga and mindfulness practice in school can particularly benefit disadvantaged

schools, so the federal government making those schools the priority is important. Funds would be obtained by districts, so it would be up to districts to decide how to implement a yoga or mindfulness program. The Department of Education should try to choose grant applicants which have research-based plans for implementation and perhaps those that may be willing to work with researchers to get more data about programs into the world.

The states have the most control over K-12 education. The states set curriculum standards and choose standardized test partners, teacher evaluation mechanisms and tenure and pay raise frameworks. Character education is an existing mechanism that could be a good way to integrate yoga and mindfulness practice into schools. Many states have opportunities for teachers and school counselors to share the best practices they are using to meet character education benchmarks. States could publicize the ways that different schools and districts are implementing yoga and mindfulness programs and what the outcomes have indicated. States can also push for professional development that includes more “whole child” curricula and puts an emphasis on mindfulness and yoga. The state could also start pilot programs for school yoga and mindfulness curricula in any state-run school, such as in Tennessee’s Achievement School District.

When it comes to flexibility and experimental programs, individual districts have the most opportunity. Individual districts can apply for both public and private grant opportunities and begin pilot programs for yoga and mindfulness in the classroom. Districts can select schools that are most representative of the district as a whole with enthusiastic leadership and teachers. Implementing a pilot program in one or a few schools will give a district an idea of whether or not a yoga and mindfulness program is something they want to invest in for everyone. Research about the impact of yoga and mindfulness programs in schools on different outcomes is still fairly early. The more that individual districts implement trial programs and conduct studies, the

more will be understood overall about the value of these programs. Independent schools should also consider doing pilot programs and using the assistance of researchers to help contribute to the volume and value of the literature.

CHAPTER VII: LIMITATIONS, FUTURE RESEARCH & CONCLUSIONS

In this chapter, I will discuss the limitations of this study which include the lack of original research, the lack of research on older students, and the lack of research about these programs and the COVID-19 pandemic. I will also discuss the opportunities for future research which include more research on the impact on achievement and the ways the COVID-19 pandemic has impacted both student mental wellness and school yoga and mindfulness programs. I will then draw some conclusions from my research.

Limitations

The primary limitation of this study is that it does not include any original research. The sheer volume of the literature already existing on the subject made it difficult to invest the quality time necessary for effective case study research. Another limitation of the study is the lack of research about the impact of yoga and mindfulness practice on adolescents. As the age of the students gets older, there is less research about the value of yoga and mindfulness practice in school. This could be because of resistance from older students and general busy-ness during the school day that does not allow for extra programming. Furthermore, studies about the impact of yoga and mindfulness on college aged students were not included in this study. This study also does not include any research regarding the COVID-19 pandemic and school mindfulness based programs. The method of collection of literature for this study also creates a small limitation. The decision to use the University of Mississippi OneSearch feature limited results only to those

which were made directly available by the University of Mississippi Libraries and their subsequent databases or those which were obtainable by the university through the interlibrary loan program.

Future Research

One of the biggest opportunities for future research is further investigation of whether or not yoga and mindfulness programs have a direct impact on achievement. Creatively designed studies could draw some conclusions by studying groups of students who participate in yoga and mindfulness programs over time. Designations about the efficacy of yoga and mindfulness practice as a means to increase achievement can only be made if the subject is more thoroughly researched. It would also be interesting to use interviews to determine whether students find yoga and mindfulness practice to be beneficial to their academic performance. If students perceive these programs to be beneficial, they will continue to build good mindfulness habits even if the programs do not have a direct empirical effect of academic success.

Another area for future research is the impact of yoga and mindfulness programs in preschool and elementary schools on mental illness as those students transition to adolescence. A long term study which examines the way that young children carry with them techniques they learned as they age could provide a lot of insight into the value of these programs. The most long term value of yoga and mindfulness programs in schools from a policy making perspective is how these programs influence anxiety, depression, and suicide rates in teens and young adults. Global yoga partners believe that yoga practice from a young age can benefit all facets of later life, but there is not enough good research to definitively say if this is true.

Finally, the impact of the pandemic on both already established school yoga and mindfulness programs and student mental wellbeing needs to be thoroughly examined in the

post-pandemic world. Students taken out of school buildings and thrust into virtual learning is likely to have a serious impact on their mental health as they age. Ways that students can cope with post-pandemic stressors should be studied and best practices should be widely shared. Additionally, methods of providing students with mindfulness practice remotely need to be studied. Because teachers had to adapt, there are surely many examples of teachers continuing to push mindfulness curriculum, even in virtual learning environments. The efficacy of these methods and best practices should be studied. Both for continuing virtual learning programs and in case it becomes necessary again on a large scale.

Conclusions

Yoga and mindfulness practice in schools are as effective as school leaders make them. If teachers and administrators are bought-in to the idea, these programs can be extremely successful and contribute greatly to the culture of a school. While these programs are not necessarily a good fit for every school, there are benefits to be had even in individual classrooms. Classroom behavioral issues are reduced with the help of yoga and mindfulness programs in schools. Attention is generally increased. Both of these things can contribute to better overall school performance, and that is the goal of experimental programs in schools. Individual children can see varied results from these programs, but if the primary goal of the education system is to produce cooperative and valuable members of society, then yoga and mindfulness programs give students key tools to become just that.

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