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Utilizing Mindfulness and Movement to Promote Executive Function and Self-Regulation

Sonia Bockoven

Capstone Project: A School Improvement Plan

Northwestern College, Orange City, Iowa

Abstract

Self-regulation and executive function skills are imperative to learning in school and success later in life. The current reality shows that these skills are not often taught, yet early childhood remains a vital time of development and is an ideal time to introduce these skills. This school improvement plan presents mindfulness and movement as strategies to explicitly teach self-regulation and executive function skills in an inclusive setting. As strategies are implemented, reflection and assessment will occur to better understand their effectiveness. Families will also be involved to encourage application of skills and strategies outside of academic settings.

Keywords: mindfulness, movement, self-regulation, executive function, early childhood, preschool, school improvement plan

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Utilizing Mindfulness to Promote Executive Function and Self-Regulation

Executive function and self-regulation skills lay the foundation for learning and set students up for future academic success. These areas encompass skills such as cognitive flexibility, working memory, inhibitory control (Zelazo, Forston, et al., 2018), attention control, managing emotions, and prosocial behaviors (Sawyer, et al., 2015). However, the problem is that these skills are often not explicitly taught or regularly practiced which may lead to difficulties in school or later into adulthood (Flook, et al., 2015). Mindfulness and movement activities can occur naturally within the classroom, compliment social emotional skills, and help relieve stress, creating a positive learning environment for students and staff. Early childhood is a period in development where these skills undergo significant growth and as such, is an opportune time to encourage their application throughout daily experiences. (Sun, et al., 2021). This specific project will include inclusive classrooms, share resources for families, and consider which mindful and movement strategies best facilitate growth in our unique population of students, comprising areas that current literature suggests for further research. Student well-being and learning are central goals within our district and the lack of explicit instruction and practice in the areas of executive function and self-regulation in our early childhood classrooms is a missed opportunity during this time of prime development.

As we strive to educate the whole child and meet their needs beyond academic content areas, we must consider additional domains. Self-regulation is not only linked to cognitive and prosocial gains, but academic strengths as well (Sun, et al., 2021). Additionally, executive function is another strong predictor of school preparedness and academic achievement (Wood, et al., 2018). Consequently, we should not ignore the benefits of executive function or self-regulation training, yet the existing conditions in our district result in many missed opportunities

for instruction, exposure, and practice. Preschoolers are offered a curriculum that focuses on social-emotional skills, only touching the surface of executive function and self-regulation and furthermore this instruction is only delivered once a week. Partnering to this existing curriculum will build connections and be most effective for young children (Lux, et al., 2020). Mindfulness is a strategy that can complement the current conditions and encourage children's development. Mindfulness helps us to be present in the moment, pay attention to our thoughts and actions (Viglas & Perlman, 2017), and can help us make plans and reach goals. The purpose of this school improvement plan is to utilize mindfulness and movement to promote self-regulation and executive function skills in early childhood.

Databases through the DeWitt Library at Northwestern in Orange City, Iowa served as a means of gathering resources to aid in the understanding of literature and studies on this topic. Articles analyzed were published within the last 10 years and were peer-reviewed. Studies, literature reviews and autoethnographies were considered within the scope of early childhood with the mention of a minimum of one the following topics: mindfulness, movement, executive function, and self-regulation. There were 20 articles selected to aid in our understanding and help us move forward in our growth of the subject.

Research has established the importance of executive function and self-regulation skills, yet the question remains how best to support the development of these skills. Mindfulness has several positive advantages such as body control, confidence, self-esteem, joy and connectedness. These benefits can reach people of all ages, yet we are continuing to learn about the role mindfulness can play in the development of skills in children. Viglas & Perlman (2017) implemented a mindfulness-based program and noted higher levels of self-regulation skills and prosocial behaviors, in addition to decreased levels of hyperactivity. In a study by Zelazo,

Forston, et al., (2018), a mindfulness training showed significant improvement in executive function skills compared to a group receiving no training. A similar study investigating executive function skills showed more growth in a group participating in a curriculum utilizing movement games than a group who did not engage in the games (Keown, et al., 2020). When movement is strategically utilized throughout the school day, on task behaviors, focus, and stimulation can increase which leads to positive application and growth of self-regulation behaviors (Savina, 2020). This adds an additional element to engage a variety of learners, and as motor skills permeate several content areas, they too can be an important factor.

McClelland & Cameron (2019) attribute periodic mixed results on skill development to differences in age, gender or other demographics. As such, we need to consider the needs and interests of our unique population of students and serve them in developmentally appropriate ways (Davidson & Kaszniak, 2015). An additional way we can connect strategies and skills is to share our instruction with families. Many researchers noted children sharing activities with families (Erwin, et al., 2017), and when school staff also communicated strategies, connections and relationships were built which in turn increased skill development (Lux, et al., 2020).

As we seek to grow students' skill sets in the area of executive function and self-regulation, we will first define mindfulness and movement in the context of early childhood and understand developmentally appropriate practices. Then, we will lay a foundation of the important roles of executive function and self-regulation skills as we describe their characteristics and how they present themselves in and influence learning and development. It will also be vital to acknowledge the limitations within the current information as we will implement our school improvement plan in inclusive settings and encourage family involvement.

Gaining a full scope of the benefits of these skills will assist us as we explore and envision what mindfulness and movement can look like in our early childhood classrooms.

Review of the Literature

In learning more about mindfulness we will define the concept, discover its place in schools, and explore a few examples in early childhood. Movement can help us reach a wider range of students and deliver instruction in an alternative format. Both mindfulness and movement can be utilized to promote self-regulation and executive function. We will thoroughly examine the importance of each in and out of educational settings. Within these areas, we will identify limitations or areas of future research to ensure all perspectives are understood.

Mindfulness in Early Childhood

A second grader described the experience of breathing meditation led by her teacher as “breathing in blue skies and breathing out stormy clouds” (Erwin et al., 2017, p. 69). Providing these evidence-based strategies to students enhances social emotional development and mental well-being by providing explicit opportunities to practice mindfulness skills (Erwin et al., 2017). When our attention and focus is purposeful and lasts a significant length of time, we are honing our mindfulness skills. This is represented in external observations such as distinct sounds or images, or being aware of other people, and internal observations through our breathing, senses, feelings and thoughts (Shapiro et al., 2015). Another definition of being mindful suggests we are aware of our internal and external experiences and are able to function in our day-to-day lives without evaluating each individual incident or stimuli (Zelazo & Lyons, 2012). Capel furthers our understanding by contrasting mindfulness with mindlessness and how each is represented in the classroom. The autoethnography research cited mindfulness as:

Openness to novelty (ability to reason about new kinds of stimuli); alertness to distinction (ability to compare, contrast, and make judgments about the similarities and differences); sensitivity to different contexts (awareness of multiple perspectives, seeing things from different points of view); and orientation in the present (i.e. paying attention to the immediate situation). (Capel, 2012, p. 669)

As such, mindfulness is continually helping us shape our world, understand and respond to stimuli, take on another perspective, and attend to tasks. Conversely, mindlessness adheres to our habits, our routines, those thoughts and reactions that are involuntary and instinctive. This comes about in a classroom when scripts, routines and standards dictate our daily activities leaving little room for innovation, creativity and enthusiasm (Capel, 2012).

As children develop, Zelazo & Lyons (2012) help us to understand that social emotional skills, including self-regulation and executive function skills, shift from a bottom-up influence to a top-down influence. A bottom-up influence is very automatic, reactive, or instinctual, reminding us of mindlessness characteristics, whereas a top-down approach is more controlled and perceptive, revealing mindful responses. We can infer that the benefits of consistent mindfulness opportunities in early childhood help students to process and be aware of the top-down approaches while also helping to regulate bottom-up stimuli.

Children experience stress, anxiety and pressure at home and school, thus the benefits of mindfulness in response are valuable. It has been documented through electroencephalogram tests in adults that mindfulness practices can alter neurological electronic activity allowing for constructive reactions to conflict (Erwin, 2017). This could be possible for young children as well with Shapiro et al. (2015), stating that consistent practice slows impulsivity and immediate reactions, and leads to improved functioning of neural circuits in the brain which aid in sustained

attention. This fosters positive effects on children's executive function, emotion regulation, perspective taking, self-compassion, moral development, creativity, and learning (Shapiro et al., 2015).

To promote these positive effects in the classroom, we must be purposeful and intentional. Many schools are on tight budgets and researchers communicate that mindfulness practices can be economical and easily included throughout daily instruction with no added financial or time stressors (Erwin et al., 2017). Davidson & Kaszniak (2015) express in their analysis that mindfulness practices must be age appropriate to our classroom populations and shouldn't be approached with a 'one size fits all' mentality. As educators learn and grow in this area, so too will practices, skills and tools. While we plan for specific opportunities within our daily routine, we must also recognize signs and signals that may lead to spontaneous practices that benefit students' health, focus, and mental well-being (Erwin et al., 2017). While investigating mindfulness studies conducted with adults, Zelazo & Lyons (2012) propose the following considerations when delving into mindful practices with children: shorter sessions, small group sizes, simplified instructions, props, and concrete examples.

These daily mindfulness instructional opportunities can take many different forms and should be imaginative, foster creativity and encourage playfulness. We often think of yoga, meditation, breathing, and visualization, yet keeping in mind our audience of children, researchers present us with alternative formats and ideas (Erwin et al., 2017). As noted above, a prop such as a hula hoop can be used to represent a body scanner as we mentally scan our bodies during a mindfulness lesson. A comparison can also be made to the light on the scanner at the grocery store that scans our groceries to provide a concrete example. An additional way to utilize a prop is to place a stuffed animal on a child's stomach while they lay down and take calming

breaths. To focus on senses and awareness, we can ask questions while eating: What color is the food? Is it hot or cold? What does it feel like? This can also be turned into a game by hiding an object behind an adult's back and giving descriptive clues to help the child guess the object (Zelazo & Lyons, 2012). Both Zelazo & Lyons (2012) and Erwin et al. (2017) share that these activities are more effective when adults participate, which can be applied not only to school, but within the home, and community as well. However, many scholars suggest further research is needed in this area.

Another area requiring more research is that of the effects of mindfulness instruction on diverse populations including students learning English and students with disabilities. In one article, teachers shared their experiences and successes within early childhood classrooms, and they observed many strategies stretched across areas of diversity. One teacher began daily yoga in her classroom with 20 4-year-olds including students with disabilities. She dimmed the lights, played quiet music or nature sounds and shared several observations during these experiences. Some yoga poses encouraged growth toward a physical therapy goal while others could reach social emotional standards by involving partner poses. To reach other content areas, they counted breaths, told stories with yoga poses to be imaginative, and related their current unit of study to the moves they were doing. Another teacher added that thematic yoga incorporated many interests of students in the classroom, which increases enthusiasm and participation. Benefits reported were increased attentiveness and self-regulation as well as improvements with balance and coordination. A staff member working with the students outside the classroom on a weekly basis noticed changes in the students and was curious about what the classroom did to promote such observable growth (Erwin et al., 2017). As we reflect on what we know about mindfulness, this example accounts for student interest and need, fits into what is already going on in the

classroom routine and curriculum, doesn't require extra monetary resources, and promotes consistency, engagement, awareness, and regulation while seeking to enhance student well-being.

Factoring in Movement

Through research, a common theme emerged noting the benefits of a movement component in addition to mindfulness. While mindfulness practices do not typically include movement, when considering our audience of early childhood students, we can see the advantages. Young children are often active and as shorter sessions are recommended, it would be natural to enhance the development of skills through alternative methods as well. When executed purposefully, movement activities can promote attentiveness, focus, making judgements, and being able to compare and contrast (McClelland & Cameron, 2019).

Movement and motor skills are present across content areas as some amount of physical movement is required to complete many tasks. Fine motor skills enable students to write, handle paper and other materials, operate technology devices, and coordinate visuo-motor movements. Gross motor skills allow children to maneuver around the classroom and building, and participate in activities (McClelland & Cameron, 2019). Additionally, movement activities are often enjoyable and engaging for children. Researchers observed student use of movement interventions during choice times, independent of scheduled times (Keown et al., 2020). Incorporating activities outside of teacher-directed lessons or even beyond school boundaries is noted in regards to mindfulness as well.

A comprehensive literature review of nine research studies conducted by Nieminen & Sajaniemi (2016) concluded "the most appropriate and effective intervention for small children might be strength-based involving the whole school, with everyday moments, movement-based

activities and home practice” (p. 8). The recommendation to include movement was reiterated in a study of 212 4-year-olds participating in a Red Light, Purple Light curriculum. This curriculum taught five movement and music games, and over the course of 8 weeks, the intervention group showed greater growth in executive function and self-regulation skills in comparison to a control group. Researchers also noted an increase in language and social skills due in large part to the opportunity for students to independently lead the activities and incorporate them during play throughout the day (Keown et al., 2020).

The above study referenced music in addition to movement. A review of research found positive connections between self-regulation skills and rhythm and music activities. Likewise, lower executive function and self-regulation skills correlate with lower beat synchronization skills. Rhythm and music activities often occur naturally within early childhood classrooms and are typically found to increase motivation and encourage participation (Williams, 2018). Examples of purposeful activities that would encourage growth would be keeping the beat with a drum or sticks, stomping to the beat, or pretending to be a conductor (Keown et al., 2020). Additional music opportunities can include nursery rhymes, action songs, dancing, listening to music, making up your own tunes, copying rhythms, chanting, and more (Williams, 2018).

To further our understanding, Keown et al. (2020), broke down one movement activity to show the specific skills involved. The game above mentioned game, Red Light, Purple Light, asks students to respond to color cues with one color representing stop and another representing go. The action could be clapping, jumping, tapping, etc. Once students are familiar with the concept, the colors and actions are switched. Children must listen, remember directions, attend to the group activity, and complete the appropriate action displaying inhibitory control (Keown et al., 2020). These activities and skills directly lead us into components of self-regulation and

executive function. The following information will provide further connections between these foundational school skills and the ways mindfulness and movement can provide effective instruction and practice.

The Importance of Self-Regulation

Self-regulation skills enable us to regulate our thoughts, behaviors, and feelings particularly in the areas of academics and social competencies (Flook et al., 2015). Sawyer et al. (2015) identifies two components to this, the first being a student's level of awareness and reactivity. The second component specifically involves the skills a student uses to manage their responses and adapt them to their present environment (Sawyer et al., 2015). Self-regulation skills quickly develop during early childhood which directly corresponds to the time when these skills are very much in need as children enter educational settings (Viglas & Perlman, 2017). Researchers find it important to recognize that the rate and timing of skill development varies greatly from child to child (Sawyer et al., 2015), yet the impacts can be far reaching.

Overall, in a classroom, strong self-regulation skills lead to an increase in learning time, while minimizing distractions and problem behaviors (Savina, 2020). Individually, a student's self-regulation skills impact school participation, learning, and their ability to adjust to varying environments (Sawyer et al., 2015). Additionally, low self-regulation skills correlate with social emotional difficulties (Viglas & Perlman, 2017). Long-term, self-regulation skills can impact finances, health, and post-secondary education. The problem remains that these skills are typically not taught within early childhood or any educational setting. Recently educational stakeholders, including parents and policymakers, have begun to recognize the significance of self-regulation skills, yet strategies and methods for instructions have not been agreed upon (Flook et al., 2015).

Savina (2020) discusses several strategies to promote self-regulation skills within the classroom including minimizing visual distractions, keeping goals and expectations visually present, and verbally coaching students. Examples of this may be to say, ‘focus your attention as this is important’ or ‘this is something new, so use your brain power, then raise your hand’ accompanied by hand gestures. Savina further references benefits of movement such as brain breaks to improve focus or playing games to enhance cognition and inhibition. These strategies could be employed in addition to mindfulness, as there is growing research on the benefits of mindfulness strategies in regards to self-regulation skills (Flook et al., 2015).

A study involving mindful yoga incorporated breathing and yoga poses on a daily basis throughout the school year in a preschool classroom. Self-regulation skills grew more in this mindful yoga group than the control group as reported by researchers, however these results were not similarly reported by families who also contributed pre and posttest data (Razza et al., 2015). Another study encouraged students to share what they learned with their families, yet no data was collected outside the school. In this study, the control group containing students ages 3-6 showed higher self-regulation skills at the start. However, following the 6-week intervention, the group receiving the mindfulness curriculum intervention showed significantly stronger skills in the area of self-regulation as well as a decrease in hyperactive behaviors (Viglas & Perlman, 2017). The study conducted by Razza et al. (2015) recommends future research involving families, which could also provide beneficial data for the mindfulness curriculum intervention implemented by Viglas & Perlman (2017).

Yet another mindful-based kindness curriculum incorporated literature, music and movement with the goal of understanding its effects on cognitive and behavioral skills such as self-regulation in preschool children. Over the course of the 12-week intervention, students in the

intervention group who began with lower skill levels made higher growth than students in the control group. While this study involved 68 children across seven classrooms, the researchers recognized that more research would provide data not only across larger settings, but diverse settings as well. While this reference was likely made in regards to racial diversity, any effort to diversify research will offer more insight for children, including those with disabilities. The study also encouraged adding a parent component to involve families in the mindfulness learning (Flook et al., 2015).

These studies demonstrate the positive effects of mindfulness on self-regulation skills, specifically within early childhood settings. We know there are young children who may need an element of movement to motivate and engage as they develop these fundamental skills. The additional benefits of yoga, music and other movement activities to the interventions above further demonstrates the need for both, giving students the ability manage and adapt in future academic and vocational settings.

The Impact of Executive Function

Studies above focused on self-regulation skills, but embedded within self-regulation are executive function skills. Wood et al. (2018) likened executive function skills to an air traffic control system for the brain. The three areas of this system are working memory, inhibitory control and flexibility (Sun et al., 2021). Working memory consists of storing, managing, and manipulating; inhibitory control prevents action on our instinctual responses; and flexibility, the ability to alter our behavior based on various situations (Wood et al., 2018). Similar to self-regulation skills, executive function skills undergo rapid development during early childhood years as we are not born with these skills. Additionally, the performance of these skills is taxed heading into the early academic years as executive function skills assist with following

directions, focusing, managing routines and expectations, developing relationships, cooperating with peers and adults, taking turns, and persisting through difficult tasks to name a few (Lux, 2020).

The previous skills are set within self-regulation skills and are integral to children's learning and functioning through the school years and beyond (Schonert-Reichl, et al., 2015). Strengths in executive function skills not only help control stress responses, but also “may protect against the risks associated with poverty and adversity” (Zelazo, Forston, et al., 2018, p. 2). Socially, students with low executive function skills are more likely to experience bullying or engage in bullying behavior. Consequently, teachers have recognized that as executive function skills influence not only the previous behaviors, and they are a predictor of academic success, they may be even more important than the academic skills themselves (Wood, et al., 2018). These statistics are reminiscent of the short and long-term effects of self-regulation strengths and weaknesses.

Weiland & Yoshikawa (2013) cite that high-quality opportunities and experiences in early childhood influence academic and cognitive success in school and adulthood. Their study of 4 and 5-year-olds implemented a math curriculum with some students and a language and literacy curriculum with others. While neither curriculum focused specifically on executive function skills, small increases were observed prompting the notion that these skills need to be targeted another way. Studies on the training of executive function skills noted that as we learn and grow, changes within our brain occur to perform tasks more efficiently and automatically (Zelazo, Forston, et al., 2018). Characteristics of mindfulness such as attention, awareness, and reactions seem to coincide with executive function areas and would be a natural intervention to help cultivate constructive brain development at a young, malleable age.

Observing that preschool interventions are especially advantageous, providing a solid foundation for cognitive skills, Wood et al. (2018) implemented a study containing yoga, mindful breathing and compassion instruction. Overall, small-to-medium growth was shown in the area of executive function skills and researchers shared this approach was considered to be both feasible and acceptable to children, teachers and parents alike. Another study implemented mindfulness training through reflection exercises and games that challenged executive function skills. With these skills targeted in a different way, the 3-5-year-olds in the intervention group had significant growth compared to the titled 'business as usual' group receiving no intervention (Zelazo, Forston, et al., 2018). While these individual studies noted growth, one literature review analyzed 16 studies to better understand the effects of yoga and mindfulness interventions in preschool. Sun et al. (2021) stated that executive function skills were the second most targeted area of research. The review cited that due to variability in measurement tools and results, the effects of mindfulness and yoga on executive function skills are inconclusive. Researchers suggest further studies with diverse and at-risk populations will provide greater information for understanding the effects (Sun et al., 2021).

Conclusion

Early childhood is a critical time in development for both cognitive and academic skills. Mindfulness and movement combined can assist children in learning and explicitly practicing self-regulation and executive function skills. These skills will directly impact future learning experiences and can have long-term effects beyond the school years. Furthermore, executive function and self-regulation skills play a role in social relationships and emotional health, which can also be enhanced by the participation in mindfulness and movement activities. Moving forward, it will be vital to further research in diverse and inclusive settings, document which

strategies work best for targeted populations, and discover ways to effectively share information with families. This will ensure we provide high-quality opportunities to young learners as they embark on their educational careers.

School Profile

Community Characteristics

Decorah, population 7,747 (U.S. Department of Commerce, n.d.), is located in northeastern Iowa and aims to welcome many more by offering visitors an enjoyable home away from home. Local shopping, unique artistry, food and drink handcrafted by neighbors, beautiful and sometimes adventurous nature experiences, with the backdrop of a Scandinavian heritage makes Decorah a special destination year-round. Home to Luther College and within a 3-hour drive of several major regional cities, Decorah provides access to a variety of opportunities, yet still maintains a smalltown ambiance (Visit Decorah, 2022).

Further demographic information that may be relevant includes 93.2% of the population are White, Hispanic or Latino: 2.8%, Asian: 2.2%, Black or African American: 1.4%, two or more races: 0.6%. The number of people who have obtained a high school diploma are 96.9% and 43.8% have a Bachelor's degree or higher. The median household income is \$55,920 with 10% of the population living in poverty (U.S. Department of Commerce, n.d.).

School District Characteristics

Recently, the Decorah Community School District has put time and effort into redefining their mission and vision statement and involved many stakeholders in the process. The mission seeks to outline the purpose and explain the who and what of the district. The new mission reads: "Learning – Thriving – Creating Our Legacy- At Decorah Community School District we embrace student learning and well-being as our fundamental purpose; we will, in partnership

with our students, families, and community, make the world a better place” (Decorah Community School District, n.d., About DCSD, para. 3). The vision further expounds on this statement, describing the environment and goals for students by stating: “Decorah Community School District will be a collaborative, innovative, learning-centered organization empowering students to embrace their personal strengths and create their future” (Decorah Community School District, n.d., About DCSD, para. 4).

As of 2021, there were 1,572 students enrolled in Decorah Community School District. The high school houses grades 9-12, middle school grades 5-8, and two elementary buildings split between grades 3-4 and K-2. West Side Early Childhood Center has preschool classrooms (Iowa Department of Education, 2018). Additional information can be found in Table 1 below.

Table 1

Decorah Community School District Statistics

Area	Statistic
Graduation Rate	96.58%
Ethnic Demographics	White: 90.5% Hispanic: 4.3% Asian: 1.1% Black/African American: 1.1% Multi-Racial: 2.9% Hawaiian/Pacific Islander: .1% Native American: .1%
Students with Disabilities	12.7%
English Language Learner Demographics	1.3%

Area	Statistic
Low Socio-Economic Status	23.2%
District Wide- Percent Proficient in English Language Arts	84.4%
District Wide- Percent Proficient in Mathematics	80.18%

Iowa Department of Education, 2018

School Building Characteristics

West Side Early Childhood Center is a stand-alone building with two classrooms of preschool students. The classrooms are part of the Statewide Voluntary Preschool Grant so students are ages 4-5. With the addition of students identified with disabilities, some students are 3-years-old and integrated into the preschool classrooms making an inclusive setting for both classrooms. In 2021, it was reported that 25 students attended West Side Early Childhood Center. White students comprised 96% of the population and 4% were Hispanic students. Students with disabilities represented 8% while students of low socioeconomic status numbered 8% (Iowa Department of Education, 2018).

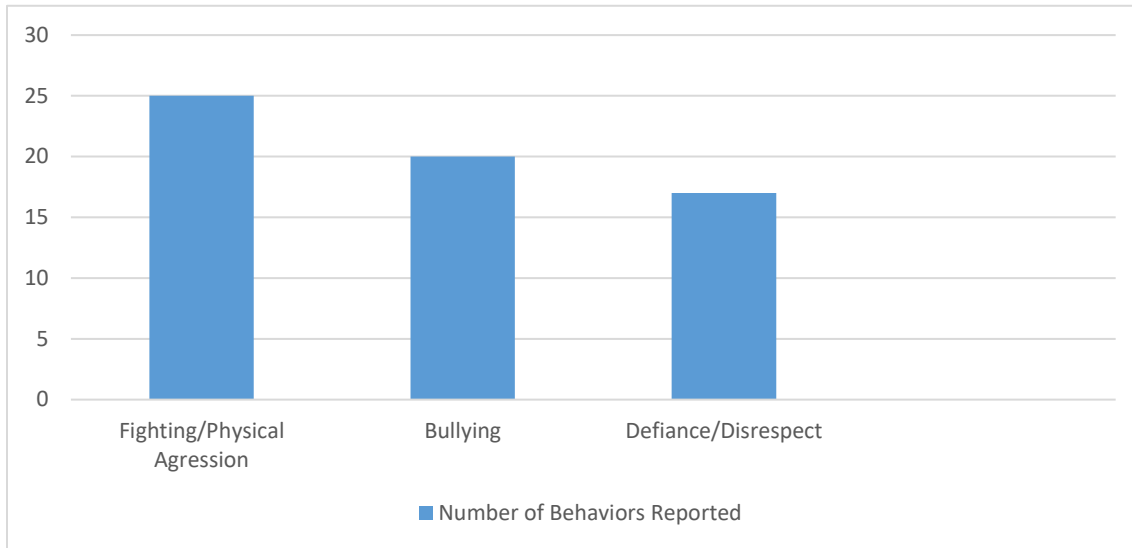
Communication with families happens through weekly newsletters and more frequently via Facebook posts on a private page for classroom or building use. The school recognizes that more opportunities for bi-directional communication are needed beyond the Meet the Teacher night at the beginning of the year and Parent Teacher conferences twice a year. Additional options could include individual emails or notes that invite responses, positive phone calls, or communication through technology platforms such as Seesaw. Throughout the year there are family events such as Literacy Night, STEAM projects, Trick or Treat for Learning and more.

Typically, there is an open-door policy allowing family members to visit, however COVID-19 has put a damper on those opportunities. School wide, there is a Family, Educator and Community Organization (similar to a PTO) which seeks to support learning opportunities within the school and raises funds throughout the year. This summer the district is partnering with Kids Lunch Club to not only serve lunches, but provide engaging activities to families and the option to check out book bags all summer long.

Student Portfolio & Performance

At West Side Early Childhood Center, students are able to participate in Physical Education classes, Library, and Wellness classes. Wellness has a focus on nutrition, healthy choices, and social emotional skills. The school targets Expected Learning Outcomes (ELOs) which were in the areas of letter identification, letter sound identification, number identification, and quantifying. This year also had a social emotional focus, although no specific data outside of the standard assessment was documented, nor were more specific targets identified. Overall, ELO data showed the majority of students meeting the goals by the end of the school year, which is typical for most years.

The average daily attendance is 95.5 out of 100 (Iowa Department of Education, 2018). Behavior data was not available for West Side, however John Cline, the kindergarten-2nd grade building, shared data for the month of May 2022 as represented in Table 2. The most common location of behaviors reported was in the classroom with 23 behaviors, and 14 behaviors were reported at recess. Remaining behaviors occurred at other locations in the school building or within the community, such as on field trips.

Table 2*Behaviors at John Cline Elementary School in May 2022*

Curriculum, Instruction, & Assessment

It is currently reported that the following curricula are utilized within the preschool classrooms: Read It Again (reading), Heggerty (phonemic awareness), Foundations (phonics and handwriting), and Second Step (social emotional). New literacy and math curricula were piloted this year in the preschool classrooms. Creative Curriculum is also utilized and students have daily choice time within the various centers offered within the classrooms. Outside is also given and gross motor opportunities are provided in the event of inclement weather.

Iowa Early Learning Standards (IAELS) are utilized as benchmarks for student learning and guide instructional opportunities in the following areas: Social and Emotional Development; Physical Well-Being and Motor Development; Approaches to Learning; Social Studies; Creative Arts; Communication, Language and Literacy; Mathematics; and Science (Early Childhood Iowa, 2019). GOLD is the assessment of choice and is completed twice a year by teaching staff through observations, anecdotal notes, checklists, rubrics, photographs, videos and other

appropriate evidence. The assessment is closely aligned with IAELS with the following sections assessed: Social-Emotional, Physical, Language, Cognitive, Literacy, Mathematics, Science & Technology, Social Studies and The Arts (Teaching Strategies, 2022).

Professional Development Practices

Throughout the school year, almost every Wednesday morning, teachers meet for one hour for Professional Learning Community (PLC) time. This allows for individual classrooms, teaching teams, building teams and community preschool partners to have the chance to collaborate and learn together. This past year, much of this PLC time was dedicated to literacy and math as the district was piloting new curricula.

The district also offers Personalized Professional Development that staff can do either independently or as a group with a variety of topics offered. There is also the option to create your own study in collaboration with an instructional coach. The AEA also works closely with local districts to provide training specific to early childhood as well as other subjects such as Mental Health First Aid. Decorah Community School District provides training on Positive Behavior Interventions and Supports (PBIS) to provide students behavioral and emotional support. PBIS resources, GOLD, instructional strategies, Individualized Education Plans (IEP), or other information relevant to student success can also be discussed during PLC times or other times dedicated for team meetings.

Needs Assessment

Decorah Community School District's (DCSD) mission statement has a focus on both student learning and student well-being. In considering the whole child, we must not only examine academic content areas, but social-emotional and cognitive areas as well. DCSD's West Side Early Childhood Center has taken time during the 2021-22 school year to pilot a new

literacy curriculum and implement a new math curriculum, which in addition to Heggerty, Read It Again and Foundations, provides a strong foundation in academic learning. Second Step is utilized as a social emotional curriculum, yet it is only taught once-a-week and supplementary practice is inconsistently provided in the classroom. This leaves a gap in social emotional and cognitive instruction, specifically in self-regulation and executive function skills. These skills provide a strong foundation for formal school learning, help build relationships and improve overall student well-being. For this reason, curriculum and instruction will be the focus of this school improvement plan.

In choosing curriculum and instruction, we can not only impact current learning and well-being, but improve future academic performance, career success and mental health as students mature and develop (Schonert-Reichl, et al., 2015). By providing consistent opportunities throughout the week to practice self-regulation and executive function skills, we can enhance student's neural connections, making constructive responses and positive behaviors more automatic (Zelazo & Lyons, 2012). Specific behaviors impacted in the classroom include participation, focus, flexibility, following directions, cooperation, friendships, and problem solving. We can see these skills in action by analyzing a classroom example provided by McClelland & Cameron (2019). Child 1 chooses a puzzle and is attentively working, following directions to complete the puzzle. Child 1 is flexible when Child 2 offers a different problem-solving technique. Then, a teacher interrupts with an unrelated request, so Child 1 utilizes inhibitory control skills to take a break before the puzzle is completed. Child 1 returns, managing their emotions when they realize Child 2 has continued to work on their puzzle, almost finishing it. They then work cooperatively to complete it (McClelland & Cameron, 2019). We can see that several self-regulation and executive function skills are utilized within one scenario and similar

situations are repeated throughout the day. Opportunities to practice and develop these skills will be highly beneficial and applied frequently every day.

Interventions chosen to be implemented are mindfulness and movement. Mindfulness enhances our awareness, increases our ability to process and make judgements, and enables us to be present in the moment (Zelazo & Lyons, 2012). This, combined with movement, promotes the aforementioned skills and adds an element of creativity and engagement, connecting with a greater population of children (Keown et al., 2020). Students can implement these skills and activities independently and educators can individualize activities to best meet the needs of all students in inclusive settings (Erwin et al., 2017). With an emphasis on family involvement, these skills and activities can also be shared to encourage their use and implementation outside of the school setting.

A study conducted by Lux, et al. (2020) concluded that aligning mindfulness lessons with a social emotional curriculum enhances developmental gains. An additional benefit the authors found is a consistent and set routine when providing interventions (Lux, et al., 2020). When we are creative with our time and resources, we can engage children and practice skills in natural, economical ways (Erwin, et al., 2017). Mindfulness and movement will complement the Second Step curriculum to enhance social emotional development, self-regulation, and executive function skills.

Data Analysis

Data Summary

Current data in the area of social emotional, cognitive and language skills comes from GOLD. Additional data is collected on ELOs in the specific areas of upper and lowercase letter identification, letter sound identification, number identification, and quantifying. This presents a

gap in data collection and analysis. In the ELO criteria, GOLD provides general information such as identifying 11-20 upper and lowercase letters or quantifying some numbers through 10. The ELO data provides a breakdown of each letter and number so that staff has a clearer picture of each child's skills.

Self-regulation and executive function skills data is found within the social emotional, cognitive and language areas of the GOLD assessment. Similar to academics, the milestone statements can be general at times. There are colored bands representing different ages, showing where students should be developmentally. As students develop at different rates, the age bands span one or more milestones on the continuum. Self-regulation and executive function skills are represented in the following GOLD objectives:

Social Emotional

1. Regulates own emotions and behaviors
 - a. Manages feelings
 - b. Follows limits and expectations
 - c. Takes care of own needs appropriately
2. Establishes and sustains positive relationships
 - a. Forms relationships with adults
 - b. Responds to emotional cues
 - c. Interacts with peers
 - d. Makes friends
3. Participates cooperatively and constructively in group situations
 - a. Balances needs and rights of self and others
 - b. Solves social problems

Language

8. Listens to and understands increasingly complex language
- b. Follows directions

Cognitive

11. Demonstrates positive approaches to learning
 - a. Attends and engages
 - b. Persists
 - c. Solves problems
 - d. Shows curiosity and motivation
 - e. Shows flexibility and inventiveness in thinking (Teaching Strategies, 2022, paras. 3, 5, & 6)

This GOLD data alone gives us a comprehensive view of a child's self-regulation and executive function skills. However, this data is typically not analyzed or given priority when making instructional decisions for students. This tells us that a higher emphasis is being placed on academic skills and while the area of social emotional learning is said to be a focus, the data collection and analysis do not support this assertion.

School Strengths

Strengths to highlight include family involvement, a school-wide focus on social emotional learning, and the presence of a social emotional curriculum. The school has communication systems in place (i.e. Facebook groups, newsletters, etc.) which inform parents of the current topics in the Second Step curriculum as well as weekly classroom highlights. Families are also encouraged to participate in various activities throughout the year that invite their presence into the school.

The current social emotional curriculum, Second Step, covers units of study related to skills for learning, feelings, empathy, managing emotions, friendship skills and social problem solving. This curriculum is utilized during weekly Wellness classes, providing engaging scripts and strategies involving puppets, photographs, stories, call and response, games, and supplemental posters for classroom use (Committee for Children, 2022). The recognized importance of mental health and well-being has prompted a school-wide focus on social emotional learning. GOLD, the current assessment, provides authentic and criterion-referenced data, giving a strong foundation for this focus.

School Challenges

There are two important challenges to note revolving around the curriculum and assessment. A Second Step lesson is taught once a week, however, the curriculum is designed to have short lessons taught daily. With instruction occurring only during Wellness class, classroom teachers can utilize supplementary activities to reinforce topics and provide additional self-regulation and executive function practice. However, this is not a current reality. After the instruction, GOLD is the chosen assessment. ELOs provide additional data to the academic areas of GOLD, yet no more specific data is collected, nor analysis performed. This would add further discussion and knowledge in the areas of social emotional, cognitive and language abilities and the understanding of children's self-regulation and executive function skills.

An additional area to keep in mind is that West Side Early Childhood Center contains inclusive classroom settings. While this should not be perceived as a challenge, it does need to be recognized as we move forward. Various strategies will serve to meet student's needs in different ways. In observing, taking anecdotal notes, and reflecting, we will be able to better understand what strategies best meet the needs of our population of students.

Assessment Options

Currently GOLD as an authentic, formative assessment takes observations and anecdotal data that is entered into a milestone continuum, providing criterion-referenced data. Our intervention will add mindfulness and movement activities and subsequent teacher reflection. The change will occur not in the type of assessment, but the reflection and analysis of the current data. It is possible, through the course of the improvement plan, teachers will find the need for more frequent data collection or different types of data collection. Through research, the following measures were found beneficial in ascertaining student's self-regulation and executive function skills: Head-Toes-Knees-Shoulders, Dimensional Change Card Sort, Child Behavior Rating Scale, Flanker Task, Devereux Early Childhood Assessment, Toy Wait/Toy Wrapping Task, Forward Digit Span, Backward Digit Span, Peg or Pencil Tapping, and the Minnesota Executive Function Scale. If additional measures are needed, these options could be considered. However, the additional analysis of the current data will provide quality information and evidence as we monitor and assess student's self-regulation and executive function skills.

Action Plan

Proposed Improvement Plan

Our goal of improving self-regulation and executive function skills will have two main interventions. Mindfulness and movement are both research-based strategies that not only increase these skills, but are engaging and motivating for children. This action plan will be implemented in two half-day, inclusive setting classrooms. The strategies will connect to a current social emotional curriculum, and encourage family involvement with the goal of these skills being applied outside of academic settings. Scheduled assessment, surveys and reflection will aid in the understanding of the effectiveness of the strategies.

Providing structured times for these lessons within the academic setting will help provide accountability and consistency. A mindfulness lesson or activity will be added prior to a large group meeting or circle time, and a movement activity will be added prior to a large group story or instruction time. These activities or lessons will be intentionally planned by staff prior to instruction and can coordinate with the current Second Step unit of study, though it is not essential. This planning time can occur during inservice days at the beginning of the school year, and a collaborative time will be decided on to maintain planning throughout the year. Educators will need time to become familiar with the research and resources to best understand how to support their classroom of students.

While implementing mindfulness and movement lessons, it is important to note that direct instruction will need to take place, yet individual students as well as small or large group activities may also be conducted at random. This will help students where they are and with what they are feeling in the moment. They may be excited after a special visitor or anxious after a fire drill. These moments can provide real-life examples of how these strategies can help prepare students for or recover from a situation or event (Erwin et al., 2017).

These unplanned lessons will not be formally documented, yet they can be noted during teacher reflection. Assessment with GOLD will occur three times throughout the year during the scheduled checkpoints. Specific attention will be given to the objectives previously cited within the social emotional, language and cognitive areas. Teacher reflection will be conducted daily by recording the activity done, length of time spent on the activity, student's responses or reactions, and notes for the future (See Appendix A). This reflection form can be distributed as a Google Doc so access can be given to multiple staff.

Families will also be asked to complete a reflection form three times throughout the year (See Appendix B). This will start at the beginning of the year to serve as a baseline, towards the end of the calendar year, and again prior to the end of the school year. Families will ask what they see as their child's strengths and weaknesses in relation to self-regulation and executive function skills, and what experience their family has with mindfulness or yoga activities. Throughout the year, families will receive newsletters, pictures, videos, and be invited to participate in family events that will revolve around the intervention lessons and activities. As a result, they will be asked different questions in the family reflection form throughout the year such as what changes they have noted in their child, if their children have utilized mindfulness or movement activities at home, and if their family has incorporated any strategies together.

Impact on Teaching and/or Learning

These intervention strategies will complement the Second Step curriculum with the focus areas of skills for learning, feelings, empathy, managing emotions, friendship skills, and social problem solving. The daily teaching of mindfulness and movement lessons with the addition of classroom resources such as posters or books to encourage students to use these strategies as needed will provide supplementary practice to the weekly Second Step lessons occurring in Wellness. Strategically placing resources for students such as yoga or breathing posters in the calm down area, or familiar books promoting mindfulness in the classroom library will encourage students and reinforce the lessons. The effects should be seen with an increase in time on task, emotion management, and problem solving to name a few. It is possible when comparing data, we will also see increases not only in social emotional and cognitive skills, but academic learning as well.

There are countless movement resources and curricula available for use with early childhood students. Recommendations for this project in regards to movement include Cosmic Kids Yoga (2022) on YouTube, Kids Yoga Stories (2022) website and the Red Light, Purple Light! curriculum (Blueprints for Healthy Youth Development, 2022). These resources provide activities that allow students the ability to move and connect with their bodies while targeting their active engagement and imagination. These are important and beneficial characteristics in reaching a range of students while seeking to build self-regulation and executive function skills (Erwin et al., 2017).

Mindfulness presents the same plethora of resources and curricula, consequently, it is vital to effectively evaluate the resources utilizing what we know about the definition of mindfulness and the research we have discovered. Several printed, research-based resources are available, for example McClelland and Tominey (2015) collaborated to create *Stop, Think, Act: Integrating Self-regulation in the Early Childhood Classroom*. This contains hands-on activities to be incorporated throughout a variety of content areas. James Butler (2019) offers *Mindfulness in a Jar* with quick cards to reach students through a variety of sensory experiences. MindUP is an online program sharing free resources and classes that can aid classroom instruction as well as providing options for families (MindUP, 2022).

Second Step provides supplemental activities within the curriculum that can be incorporated as intervention lessons. The curriculum also includes prepared family letters which inform of the lesson and provide an activity for families to do together at home (Committee for Children, 2022). Additionally, we need to recognize the value of children's literature and the multitude of books that can teach students through colorful illustrations, appealing stories and relatable characters. This wide variety of resources will provide multiple opportunities to connect

with the unique population of students and the reflection process will assist in recognizing the most effective resources.

Alignment to Research

This project directly addresses three main areas researchers recommend for future study. It is understood that mindfulness is not a ‘one size fits all’ intervention, so we will note which activities seem to work best for our population (Davidson & Kaszniak, 2015) as well as ensure age appropriateness (Shapiro et al., 2015). Additionally, we need to learn more regarding diverse populations, including inclusive classrooms (Wood et al., 2018). Our plan will also involve families to help apply strategies outside of the education setting and encourage relationship building (Lux et al., 2020).

Mindfulness and movement curricula generally involve the direct teaching of activities, which is an important component when learning and growing. Yet these strategies will be utilized throughout one’s life and we want our students to be able to apply them in the moment to function in and out of school settings (Erwin et al., 2017). As a result, this plan will not only encourage explicit teaching, but also use of strategies throughout the day by incorporating easily accessible classroom resources and whole group or individual support as needed. Staff can aid students spontaneously by employing familiar strategies and those which the student or group has found to be motivating and successful.

Summary

The purpose of this plan is to increase self-regulation and executive function skills through mindfulness and movement. In collaborating with other staff, involving families, and connecting to the current social emotional curriculum, students will enjoy new and engaging opportunities. As the implementation of the plan progresses throughout the year, learning will

simultaneously occur for students, staff and families. By analyzing data from GOLD and family surveys three times a year, and performing daily reflection, appropriate changes can be made so the strategies can have a lasting impact on student's well-being.

Implementation of School Improvement Plan

Introduction

This plan has the long-term goal of increasing student's overall well-being by explicitly teaching strategies that will increase self-regulation and executive function skills. There are short-term checkpoints along the way to monitor progress and detailed actions that we can take to help reach that goal. We are partnering with families and sharing the information so they too can help their children succeed. This plan utilizes mindfulness and movement to encourage engagement and age-appropriate activities. Additionally, it addresses these skills in the context of inclusive settings. Below, a timeline is presented along with specific roles and responsibilities, ways to monitor progress, and limitations and challenges to be cognizant of throughout the implementation.

Timeline

The short-term checkpoints to keep staff on track are broken down in Table 3 along with approximate dates and resources needed. Two aspects to highlight at the beginning of the year will be ensuring that staff members understand the topic and the role they will play as we go forward, and scheduling future sessions to monitor and evaluate the effectiveness of the plan. While much of the year will be predictable with implementing lessons and evaluating their success, it will be important to stay up to date with GOLD data and family surveys as well as family communication. This timeline should be periodically reviewed during meetings throughout the year to confirm short-term checkpoints are being met.

Table 3*Task List for School Improvement Project*

Task	Date	Resources
Training on self-regulation, executive function, mindfulness and movement	Mid-August	-School Improvement Plan -Curricula options
Scheduling group planning and reflection sessions every two weeks	Mid-August	-Calendars
Planning sessions	Every two weeks	-Curricula options -Reflection notes -Planbook (lesson plans)
Daily mindfulness and movement lessons	Daily	-Curricula options (plus any additional supplied needed for implementation) -Planbook (lesson plans)
Daily individual teacher reflection	Daily	-Reflection notes
Family surveys	Three times a year: beginning, end of calendar year, end of school year	-Labeled copies of family surveys -Envelopes for surveys -Letter of explanation

Task	Date	Resources
Reflection sessions	Every two weeks (specifically following GOLD and family surveys)	-Reflection notes (Google Doc) -Family surveys -Printed GOLD reports
Family communication	Every two weeks	-Computer -Lesson plans
Data collection	Throughout the year	-GOLD data- anecdotal records, videos, photos, notes, etc.
GOLD assessment	Three times a year as scheduled through GOLD	-Computer -GOLD program -Collected data

Role Clarifications and Assignments

Administrators, specifically the Elementary Learner Advocate and Principal, will take on more of a collaborative and facilitator goal. As a part of professional development at the beginning of the year, administrators will be essential as staff trains and puts in place the schedule for the remainder of the year. As the year progresses, administrators will be involved in monitoring planning and reflection discussions. This will also include analyzing data from GOLD and family surveys. As the Elementary Learner Advocate is responsible for the Second Step instruction, family letters, and the school Facebook page, the creation and distribution of

family communication will be associated with this role as well. Together, we will celebrate successes and make necessary changes. These celebrations and changes will be shared with families as appropriate. Families will also have a role throughout the project. They will be asked to fill out surveys three times a year, stay informed through communication from the school, facilitate activities at home as they feel comfortable, and participate in family events as able.

All staff will share the responsibility of planning family events and facilitating the events. Other shared responsibilities include familiarizing oneself with self-regulation, executive function, mindfulness & movement through training at the beginning of the year. All new staff will be trained in the GOLD assessment. While teachers will primarily take the lead for selecting, planning, and implementing large group interventions and activities, paraprofessionals will work to support and encourage students as needed. Paraprofessionals will also assist in seeing those moments where small groups or individual students could utilize a strategy outside of the scheduled intervention. As a result, communication as a teaching team will be imperative and led by teachers. The documented reflection will be completed by teachers, yet paraprofessionals are welcome to share their observations and feedback, and participate in data analysis.

Progress Monitoring

There will be three major pieces to our progress monitoring: GOLD, family surveys and teacher reflection. The family surveys will be completed three times a year. The first survey will occur at the beginning of the school year and the following two will be towards the end of the calendar year and the end of the school year. At the beginning of the year we will seek to understand where families are beginning with mindfulness and movement. Subsequent surveys

will give us an idea of any family activities that are being done and any changes they notice in their children.

GOLD will also be completed by the three scheduled checkpoints throughout the year. Social emotional, language, and cognitive are the areas within GOLD containing the objectives that directly relate to our goal of increasing self-regulation and executive function skills. Increases in these skills can be reflected in academic growth as well, so it will be interesting to compare data from previous years to note any differences. While we can analyze the numerical data of GOLD, it is an assessment based on collected evidence so considering photographs, videos, portfolio contents, and anecdotal notes will also provide insight into growth and effectiveness of the interventions.

Teachers will be completing individual reflections regarding daily activities, length of time, and student reaction to the chosen strategy or intervention. The skills of self-regulation and executive function will not be fully acquired in early childhood, but growth should be observed and documented. In reflecting and analyzing the data, we need to consider all aspects to better understand which strategies and interventions are working most effectively, what students are enjoying and responding to, and how families are impacted. It will be important to reflect as an individual, but group reflection and analysis will be vital to make any changes on our journey to influence student's well-being.

Limitations

Currently our staff has limited experience with mindfulness and movement, so we will need to train and educate prior to the beginning of the year and rely on each other as we navigate resources and implementation. Designated planning and reflection time will aid in this as we continue to grow and learn. As a result, we will need to be respectful of the planning and

reflection time to ensure we use it effectively and appropriately. While this may not be a limitation, it could present itself as a barrier if not made available.

Another potential barrier is the small size of the classes. The inclusive settings are a benefit for future research and we will seek to find activities and lessons that provide the most benefit for our unique group of children. Yet when trying to identify which resources work best for certain populations, our small group does not provide great diversity. Associated with this potential barrier is the equally small number of families involved. While we encourage families to complete the surveys and share their feedback, full participation is unlikely.

Our single assessment, GOLD, should be considered a limitation due to its wide range of content areas. While it has several objectives that represent self-regulation and executive function, its design and purpose is not specific to these areas. In the interest of maintaining a reasonable budget an additional assessment was not chosen for this improvement plan, yet one could be considered in the future if needed. Staff may also find it beneficial to create a teacher-designed rubric to better monitor certain aspects of self-regulation and executive function skills, or could select an assessment whose purpose aligns more directly with the goals of this project.

Conclusion

The current lack of self-regulation and executive function instruction occurs in many schools. This school improvement plan ensures that self-regulation and executive function skills are explicitly taught through mindfulness and movement strategies. These strategies promote engagement, focus, goal setting, body control, self-esteem, connectedness and prosocial behaviors. These skills impact students within the school setting but also out in the community and into their adult lives. Early childhood is a short but crucial period of time where these skills develop at a rapid rate and are used significantly in classrooms. We know many students,

including diverse and inclusive populations, can benefit from mindfulness and movement (Keown, et al., 2020; Savina, 2020). To further this school improvement plan, we include family involvement to encourage students to apply strategies outside the academic setting. Working together, we will put student's well-being first as they learn and grow.

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Appendix A

Teacher Reflection Form

Teacher Reflection Form			
Lesson/Activity	Length of Time	Student Participation/Response	Notes

Appendix B

Family Reflection Form

Family Name _____ Date _____

1. What do you see as your child's strengths in learning and interacting with children and adults?
(Possible examples include sharing, following directions, problem solving, recognizing other's feelings, taking turns, imagination, managing emotions, etc.)

2. What skills would you like your child to practice and grow in this area? (See above for examples)

3. What experiences does your family have with mindfulness, yoga or other movement activities?

4. What does your family like to do together?

(Questions below will be added later in the year)

5. What changes have you observed in your child in regards to learning and interacting with children and adults?

6. Has your child or family incorporated any mindfulness or movement activities at home? If so, what activities?