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Incorporating Physical Activity In The Kindergarten Classroom

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INCORPORATING PHYSICAL ACTIVITY IN THE KINDERGARTEN CLASSROOM

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To my husband, John, and my daughter, Lucy. Thank you for loving and supporting me.

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Abstract

Physical activity is something all children need. In today's world, young children are spending more time on devices and are getting less physical activity at school and home due to busy and overbooked schedules. Research conducted by Abdelbary, Castelli et al., Conyers & Wilson, and Helgelson show that when children move more, they can increase their academic achievement, on-task behavior, and their overall health. Keeping the body active promotes mental clarity by increasing blood flow to the brain, making activity vital to both learning and physical and neurological health (Abdelbary, 2017). The collection of research in this capstone project helps to answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* To help promote the use of physical activity in the kindergarten classroom, the capstone project provides an assortment of physical activity ideas and resources in a Google Slides presentation that teachers can implement in their own classrooms. The activities are directly tied to the Minnesota state standards for English Language Arts and Math so teachers can incorporate more physical activity in the kindergarten classroom and increase learning at the same time.

CHAPTER ONE

My Capstone Story

The Question

"Kids need to be moving more!" is the thought that keeps coming to me as I think about my time as a kindergarten teacher. Over the past six years, I've been teaching five, six, and seven year old students. I love teaching this age group because students are figuring out how to become their own person and learning how to love learning! Over the course of the last six years, I have worked with numerous students who are unable to sit still during lessons, students with off-task behaviors, blurting, and impulse control issues, just to name a few.

In kindergarten, we want students to learn all of their alphabet letter names and alphabet letter sounds, even learning about short and long vowel sounds! We also begin to learn how to read CVC (consonant, vowel, consonant) words like "cat" as well as sight words to eventually read simple sentences. We want students to be able to read, write, and count all numbers from 0-31. These learning targets are so much fun, but there is a lot to cover in just one year of school! With all of these learning targets and so much to teach students in one year of kindergarten, I believe young students need more movement during their school days to help students stay engaged. My feelings about this have been amplified this year, during a time in our lives where students have been home for the last 6 months enduring a global pandemic, spending time on electronic devices, and away from family and friends. Movement in kindergarten is so important because it allows students to engage their bodies with their brains during a school year where they are learning so much. I want to know, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*

When I ask this question and use the term physical activity in relation to a classroom, it means anything that is active that can also be tied to learning. Some simple examples of physical

activities in the classroom are: jumping up and down while counting to 10, singing the alphabet song while cleaning up supplies, or having students slowly shrink down and “melt” to the carpet as students count backwards from 10 to 1. Counting up, learning alphabet numbers, and counting backwards are all learning targets in kindergarten, so these are ways that students are moving and learning at the same time. The rigor in kindergarten has continued to increase and some students come to school with little to no prior school experience. Especially in kindergarten, the range of students can be very large, so focusing on teaching the state standards is very important. So, can we feed two birds with one seed, as they say? My purpose in asking this research question is for just that reason. I want to be able to allow and encourage more movement in my kindergarten classroom, but in a way that allows students to increase learning at the same time.

How I Got Into Teaching

Becoming a teacher is my second career. People often ask how long I’ve been teaching, and even though this is only my sixth year of having my own classroom, I have been working with students in schools for many years. After graduating with a Bachelor's Degree in Communication Studies from a small liberal arts school in southern Minnesota, and working for a software company for over two years, I realized I needed to do something with my life that involved working with people - in person - and making a difference. I quit my job over the summer months and became a Minnesota Reading Corps (MRC) tutor starting in the fall in a Minneapolis Public School. My primary focus as a tutor was working with kindergarten students in small groups of four, and then for a second time during the day in pairs. During our tutoring sessions we worked on letter names, letter sounds, blending sounds, nonsense words, reading stories, vocabulary words, and identifying things like characters, settings, problems, and solutions within those stories. I absolutely loved working with kindergarteners and being in a school setting. My job as a MRC Kindergarten focused tutor was to support the learning that was

happening in the classroom, but to do it in a smaller setting. The students that qualified for MRC services were students who needed a little extra boost to catch up with their peers.

During my year as a MRC tutor, I enjoyed my experience so much and received so much encouragement from other educators, that I decided to go back to school to get my teaching license. It was also during this time that I realized how important exercise and movement were for *my* daily living. I was an athlete as a high school student, participating in cross county, tennis, and track and field. I even qualified for the State Track Meet in 2004! I was also a member of the Track and Field team during my time as an undergraduate, but it wasn't as important as working and studying became at that time. While I was a MRC tutor, I joined a run club at LifeTime Fitness. I either ran by myself, with friends, or with the run club five or six days a week. I also met my current husband during this time and the two of us would spend some of our time together going for runs around the Minneapolis lakes! During this time I also ran a few half marathons, 10 mile races, and many, many 5K's. Physical activity became a large part of who I was as a person and made me more focused and successful as I began my path into education.

Journey to the Kindergarten Classroom

After learning about different teacher preparation programs, I decided to enroll at Hamline University to work on my initial teaching licensure and Master's Degree. Shortly after being accepted at Hamline, an opportunity to work full time as a Special Education Paraprofessional at an elementary school in a suburb of the Twin Cities fell into my lap. It was an offer I couldn't refuse! At this time in my life, I really didn't know much about Special Education, especially at the elementary level. This was about to change! For two years I worked full time as a Special Education Paraprofessional in a center-based classroom with students diagnosed with Autism Spectrum Disorder (ASD) and students that were Developmentally and Cognitively Disabled (DCD). Prior to this job, I would not have been able to tell you what the

initials ASD or DCD even stood for. This was one of the most challenging and rewarding jobs I've ever had. Most of the students I worked with were non-verbal, so using American Sign Language (ASL), Picture Exchange Communication System (PECS), and Augmentative and Alternative Communication (AAC) devices were used to communicate. My toolbox as an educator grew as I learned how to teach, communicate, handle challenging behaviors, and work with students with special needs.

Special Education Paraprofessional

After two years working in that environment, I was given an opportunity to work as a Special Education Paraprofessional in a different role. I moved to a different school within the same district to work as a one-on-one paraprofessional, where I assisted students in their general education classrooms. I chose to move to this position as I was working closer to completing my initial teaching license courses and wanted more experience in a general education setting. During my time in this role, I worked with two different students. In the mornings I assisted a 3rd grade student with Autism, and in the afternoons I worked with a 4th grade student with Autism. We worked on academics, social skills, communication skills, and self regulation skills. This was another exciting opportunity in my journey to becoming a teacher because I was able to observe and be a part of different classrooms during my day. My tool box as an educator continued to grow.

Throughout both of my roles as a Special Education Paraprofessional, I noticed the need and desire for students to move. Whether it was during gym class, DAPE (Developmental Adapted Physical Education), recess, music therapy, or through in-class movement or brain breaks like GoNoodle; students craved the chance to move and were more successful following these movement breaks. Students couldn't wait until it was time for gym and rushed to be the first

one dressed and out to recess! Even students halfway through their elementary school years loved to move!

After being a Special Education Paraprofessional for 3 school years and finishing my initial licensure classes at Hamline, I completed my student teaching experience during the fall in a first grade classroom. During this experience I was able to see first hand how much sitting primary aged students were doing and how much more movement they needed! The first grade teacher I worked with used songs and educational videos at the beginning of her lessons to hook students into new content. Students were encouraged to stand, move, dance, or do whatever they could (in a respectful way) with their bodies before being asked to sit for the rest of the lesson. While these movement breaks were helpful, I felt like there needed to be more. Recess was short, and sometimes held indoors if there was inclement weather, and students only had Physical Education two times a week! I observed and experienced first hand how much more physical activity students needed during my student teaching experience.

Teacher

Following student teaching, I became a long term substitute for the remainder of that school year in a different 1st grade classroom. Again, I found that students in this age group needed to be constantly moving. I started to learn more about the stamina of this age group and found that whole group lessons should only be about 15 to 20 minutes long. In between these 15 to 20 minute lessons, some type of movement was key. Sometimes just transitioning between activities was a good enough movement break, but I kept wondering if these movement breaks could be tied to something more academic to increase student learning. I started to fill my toolbox with ways to keep students engaged: doing different cheers when students were on track (“get out your fans, shhh shhh shhh, FANNNNtastic!”), encouraging students to stand and “climb” the ladder up to the sky while counting by 10’s, and playing a blending song, “bumpity, bumpity,

yellow bus, will you say the word with us, /c/ /a/ /t/", and students would say "CAT!". These movement breaks were helpful, but could I be doing more?

Following my long term substitute position in 1st grade, I got hired for my first full time job. This was as a teacher for a kindergarten position for a unique program called Kinder Academy. Kinder Academy is a one or two year program for young five year olds. Young five year olds are students that have summer birthdays. This program was designed to have young five year olds start in Kinder Academy, and then depending on their success with social, emotional, and academic development, they would either be recommended for a second year of Kinder Academy or move on to first grade. It was during my experience in Kinder Academy that I was able to observe and interact with even younger school aged children and found their need for movement and learning was even more critical to their success in school. Through my experience in Kinder Academy, I found that KA classrooms were made up of at least 75% male students that were full of energy and often came to Kinder Academy with even less "pre-school" experience than your typical kindergartener. Teaching new or challenging concepts in Kinder Academy proved to be even more difficult than what I had expected.

Current Teaching Position

After teaching Kinder Academy for three years, I moved schools within the same district and was hired as a kindergarten teacher. I am currently in my second year teaching in a regular kindergarten classroom. I love teaching kindergarten! The excitement of learning, making friends, and being at school for the first time are so contagious! As a kindergarten teacher, I feel the effects of rainy days with no recess, snowy cold stretches where students have been cooped up at home and school, and days when we don't have Physical Education with our specialists. Students need to move. Kindergarten students need to move even more! Especially now, during a global pandemic, where students are being asked to socially distance with their peers, stay at their table

spots to stay safe, and are not allowed to go to the playground every day for recess to avoid cross contamination with other classrooms. My kindergarten students need to move. However, I still need to teach my students the state standards, so I want to know, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*

Rationale

Answering the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* is such an important topic for all teachers, but especially kindergarten teachers. During this day and age, students are spending more time on devices and watching screens. Students are getting less physical activity at school and home due to our fast paced lives and overbooked schedules. Through my experience teaching, I've learned that Kindergarten students need to move to stay engaged and any way that teachers can tie movement to learning is a win! Movement in the classroom is important because the rigor in kindergarten has increased. I use things in the classroom that get students up and moving, like GoNoodle, or a Harry Kindergarten sing along video on YouTube, but I keep wondering if there's something more I can be doing that will benefit my students both physically and academically? When we are asking students to do more and learn more at a younger age, we as educators can't expect them to just be able to sit still and learn it all! Students are expected to learn how to read in kindergarten. Some students enter kindergarten not even knowing the letters in their name or how to write their name! In my kindergarten classroom, I have more students with off task behaviors, issues with blurting, and difficulties attending during whole group and small group lessons. It is my hope that this research will be able to benefit my students this school year and help me fill my tool box with movement and learning ideas for many school years to come.

Conclusion

In addition to adding in more physical activity in my kindergarten classroom, it is still vital for me to find ways to move my body every day. Whether I'm taking a walk before or after school, going for a run, or participating in a fitness class at my local gym or in my basement, I feel better about my day and about the work I need to do when I can move my body. I have a family of my own, so running 5-6 days a week and training for half marathons isn't as high up on the priority list as it was when I first started my career in teaching, but it is still something that is critical to my well being. Teaching is a very emotional and physical job, and when I can get physical activity before teaching for the day, I feel the effects and have more energy to do it! Physical activity is critical for our youngest learners, too. If students do not have enough opportunities to move their bodies, it affects their ability to focus and learn.

In Chapter One, I've been able to share my journey into teaching. I have worked with many different students in many different settings, and across the board, there is a need for more movement in classrooms. In Chapter Two, I will be completing a review of literature of studies about movement and learning in kindergarten and other primary aged classrooms. I will cover the need for movement, the benefits of including physical activity in the classroom, different types of physical activity that can take place in the classroom, and recommendations from professional and government organizations about how much movement is expected for this age group of students. My hope is that through researching this topic, I will be able to create a Capstone Project that provides ideas and resources for other kindergarten teachers so that they too can incorporate physical activity into their classrooms. I want to help support other educators in answering the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*

CHAPTER TWO

Introduction

In order to answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?,* it is necessary to present a summary of research from four relevant categories. First, I will discuss changes that have been made to primary education that have created a need for physical activity in the classroom. I will talk about how kindergarten has shifted over the last half century and talk about why movement is so necessary for kindergarteners today.

Second, I will discuss the benefits of incorporating movement into the classroom. I will highlight how it has positively affected academic achievement in numerous studies. I will also show how movement can increase on-task behavior in the classroom as well as the overall health of a child.

Third, I will define what physical activity is. I will share ideas about physical activity in the classroom from other educators as well as discuss programs that have been designed for the sole purpose of getting children to move more frequently during their school day.

Last, I will share recommendations from professional and government organizations about how much movement is expected for this age group of students. This section will talk about the frequency of movement as well as recommendations for specific age groups.

The Need for Movement

Introduction

In this first section, I will discuss changes that have been made to primary education that have created a need for physical activity in the classroom. This section provides the rationale for my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* It will also cover how kindergarten has changed over the half

century as well as some of the health concerns for children that are on the rise. Then, I will review the body and brain connection and why movement is so important for learning. The last part of this section will discuss No Child Left Behind and how that law has been connected to students having more sedentary time in the classroom.

Kindergarten Has Changed

In 2009, a report titled, *Crisis in the Kindergarten*, warned that kindergarten in the United States had radically changed over the past two decades and that "developmentally appropriate learning practices" centered on play, exploration, and social interactions had been replaced with highly prescriptive curriculum, test preparation, and an explicit focus on academic skill building (Bassok et al., 2016). A study done by Dotson-Renta (2016) through the University of Virginia found that, compared to 1998, children today are spending far less time on self-directed learning—moving freely and doing activities that they themselves chose—and measurably more time in a passive learning environment (para. 1). One concern with having too much focus on academic skills is that it might crowd out other important types of learning experiences that help develop social and regulation skills (Bassok et al., 2016). This shift in kindergarten has caused students to spend less time moving and more time sitting during their time at school.

Health Concerns

In addition to the rigor of kindergarten changing, childhood obesity is on the rise. According to the World Health Organization, 38 million children under the age of 5 years old were overweight or obese in 2019. The proportion of children who are overweight has more than tripled since the 1970s (McKenzie & Kahan, 2008, p. 172). According to McKenzie and Kahan (2008), not only does being overweight in childhood have its own physical and psychological health problems, overweight children are also likely to become overweight or obese in adulthood (p. 172). With more focus on academics and higher numbers of obesity, the need to move is more

important than ever before. Research observing children's level of physical activity indicates that preschoolers are sedentary throughout their day (Bjørgen, 2015). Children's bodies, metabolisms, and bone structure are designed to be active all day (Ostroff, 2005). Even in kindergarten, only 39% of elementary schools in the United States require Physical Education (Stork & Sanders, 2008). According to the World Health Organization (2019), physical inactivity is now identified as the fourth leading risk factor for global mortality (p. 7). Physical inactivity levels are rising in many countries with major implications for the prevalence of noncommunicable diseases and the general health of the population worldwide ("World Health Organization," 2019). These health concerns are not just for children, but for all. Learning to move your body and enjoy doing so can be taught to young children, and should be taught to students in school.

The Body Brain Connection

According to Jensen (2005), the part of the brain that is most associated with motor control is the cerebellum (p. 61). The cerebellum is located in the back of the brain. The cerebellum is about half the size of a small fist, takes up about one-tenth of the brain by volume, but contains nearly half of all the neurons in the brain (Jensen, 2005). The cerebellum has more than 40 million nerve fibers that feed information from the cortex, to the cerebellum, and then back again. Pathways have been traced from the cerebellum back to parts of the brain involved in memory, attention, and spatial perception (Jensen, 2005). The part of the brain that processes movement is the same part of the brain that processes learning (Jensen, 2005). Biology shows us that oxygen is a key component for brain function. When our bodies have enhanced blow flow, which comes from movement, the amount of oxygen that is transported to the brain increases (Jensen, 2005). Therefore, by having students engage in physical activity, they increase the blood flow in their bodies and,in return, bring more oxygen to their brain. This improves their brain function and allows for more learning. Understanding the connection between movement and

cognitive function is crucial to understanding how children move, learn, and explore the physical spaces of their school classrooms (McLaren et al., 2012). When educators involve movement in their school day it allows for more learning to occur.

No Child Left Behind

By the beginning of the new millennium, research about the positive effects of physical activity and the impacts it had on academic achievement at school started to gain popularity. That was until the installment of No Child Left Behind (NCLB) in 2002. NCLB was a federal law that stressed the importance of increasing instructional time which ,in turn,caused certain subjects, like physical education and physical activity opportunities, like gym class and recess, to be limited or even cut out of the school day (Castelli et al., 2014). Even though there have been numerous studies proving the benefit of health programs in school, the influence of NCLB has encouraged time that could be spent on physical activity to instead be spent on teaching content to help with standardized test preparation (Castelli et al., 2014). School days are short and there is a lot that teachers need to do, but we *can* challenge students academically and give them opportunities for movement. Schools have been identified as a key setting for promoting public health and increasing student's physical activity. Schools, however, are primarily and deliberately designed to produce cognitive outcomes, and their structures and programs inadvertently suppress children's physical activity (McKenzie, & Kahan, 2008, p. 173). Neuroscience research shows that we can still challenge students academically and provide opportunities for play because exercise powers up brain areas associated with executive functions that support higher order thinking and with learning and memory (Conyers & Wilson, 2015).

More Time Being Sedentary

Students are being asked to *sit and get* in the classroom to prepare for standardized testing. Children are asked to sit still and listen in the classroom so they can be taught more

content in order to be prepared for high stakes testing. Asking children to sit still at school can be a big problem, especially when teachers are being asked to do more academically with their students, which has caused schools to think that movement, physical activity, and free play are a waste of time (Abdelbary, 2017). Rather than trying to get children to stop fidgeting, we should embrace their tendency to move as a prerequisite for developing focus (Ostroff, 2005). Studies show that living a sedentary lifestyle is detrimental to our health but we ask students to sit still and listen for hours every day at school (Balcom, 2017). Movement gives a student's brain a chance to *do* information that the student is learning, rather than to only see or hear it (Ostroff, 2005). Movement helps students with their learning, information gets sent to the brain through more senses when movement is involved. When children can jump, skip, reach, and balance, it teaches them how to operate in the world in many different ways. The more the whole body is involved in any learning experience, the more engrossed and focused the learner will be (Ostroff, 2005). Osnes, Skaug, and Kaarby, 2010 (as cited by Bjørgen, 2015) explain that physically active play can be defined and understood as any activity that involves moderate to high levels of physical activity in the context of play with an energy expenditure above the physiological (i.e.muscular and cardiorespiratory) norm.

Allowing students to move in the classroom allows them to regain focus and concentration. A study conducted at Duke University in 2011 found that a student's capacity to concentrate is one of the best predictors of success (Abdelbary, 2017). Terrie Moffitt and Avshalom Caspi, psychology and neuroscience professors at Duke University, studied more than 1,000 children in New Zealand over a period of eight years to track their ability to pay attention, then followed up with them as adults to measure their health and financial stability. Those with more self-control were less likely to have difficulty with money or health problems (Abdelbary, 2017). Allowing students to engage in physical activity helps with building their stamina to focus

and pay attention. Students today have much more access to devices and screen time than students did 30 years ago. The solution to this problem is not asking students to continue being sedentary, it's to get them up and moving (Abdelbary, 2017).

Conclusion

In this first section, the need for movement in the classroom was addressed. The topics of how kindergarten has changed, health concerns for children that are on the rise, the brain body connection, NCLB, and how children are spending more time being sedentary were covered.

This section discussed that compared to 1998, children today are spending far less time on self-directed learning—moving freely and doing activities that they themselves chose—and measurably more time in a passive learning environment (Dotson-Renta, 2016, para. 1). Research discussing health concerns for children showed that according to the World Health Organization, 38 million children under the age of 5 years old were overweight or obese in 2019. The brain body connection was highlighted, we were shown that the part of the brain that processes movement is the same part of the brain that processes learning (Jensen, 2005). The next section addressed No Child Left Behind, which was a federal law that stressed the importance of increasing instructional time which in turn caused certain subjects, like physical education and physical activity opportunities, like gym class and recess, to be limited or even cut out of the school day (Castelli et al., 2014). Because of things like NCLB, how Kindergarten has changed, and with the number of overweight and obese children on the rise, children are being asked to sit still and listen in the classroom so they can be taught more content in order to be prepared for high stakes testing. All of these studies help support the case for increasing movement in the classroom.

In the next section, the benefits of movement in the classroom will be discussed. Movement in the classroom can provide academic achievement, an increase in on-task behavior,

and an increase in overall student health (Conyers & Wilson, 2015, Helgelson, 2011, & Castelli et al., 2014).

Benefits of Movement in the Classroom

Introduction

There are many reasons why adding movement, which is sometimes referred to as physical activity, in the classroom is beneficial for students. This section will cover the main benefits of including movement in the classroom: academic achievement, an increase in on-task behavior, and an increase in overall student health. This section will help show the benefits we can reap from answering the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*

Children that are healthy and engage in physical activity learn better. According to Castelli, et al., (2014), educators and scientists have found how important physical, cognitive, and brain health is in having successful education in schools (p. 3). Studies show that children who are more active exhibit better focus, faster cognitive processing, and more successful memory retention than kids who spend the day sitting still (Abdelbary, 2017). Keeping the body active promotes mental clarity by increasing blood flow to the brain, making activity vital to both learning and physical and neurological health (Abdelbary, 2017). Research has shown there are no negative consequences for making physical activity part of the school day, which should alleviate concerns that taking time away from core subjects for *play* might decrease grades or test scores (Conyers & Wilson, 2015).

Increase in Academic Achievement

When we add movement and allow students to be physically active in the classroom students increase their academic achievement. A University of Illinois study reports that 9 and 10 year olds performed better on reading comprehension, spelling, and math tests when they had 20

minutes of physical activity immediately before testing (Conyers & Wilson, 2015). Moderate to vigorous physical activity that increases the heart rate seems to have the greatest positive effect on academic performance (Conyers & Wilson, 2015). According to research done by Ratey in 2008 and Foruhi in 2013 (as cited in Conyers & Wilson, 2015):

> Exercise has been shown to enhance both neurogenesis (the creation of new brain cells in regions of the brain associated with higher-order thinking and recall) and experience-dependent synaptogenesis (the formation of synaptic connections between neurons in response to learning and sensory input from the environment). Specifically, physical activity appears to stimulate the production of a protein called brain-derived neurotrophic factor (BDNF), which helps neurons and synapses grow. In fact, BDNF has been likened to fertilizer for the brain. (p. 4)

Physical activity increases higher order thinking and recall. When students are given the chance to move, rather than sit still while they learn, their academic performance is enhanced.

Increase in On-Task Behavior

Movement in the classroom is also an easy way to help students stay focused on learning, stay energized throughout lessons, and helps to work as an effective classroom management tool because it also increases on-task behavior (Helgelson, 2011). When teachers have good classroom management, the classroom is positive for learners and students are more likely to feel safe and learn. When teachers provide a variety of activities in their classrooms, including movement, students are more likely to be focused, attentive, motivated, and will work in various ways to accomplish goals (Helgelson, 2011). When the learning environment of a classroom is positive, students are more likely to be engaged, and therefore are more likely to learn.

There are many reasons why the body needs movement, especially for young learners. Young learners have fluctuations in their metabolism and often become restless when sitting for

long periods of time. After sitting for long periods of time, young learners require physical movement to refocus. When teachers avoid long periods of lecture by adding in physical movement, they can improve learning for young learners all while managing the classroom more effectively (Helgelson, 2011). Elementary and middle school students are typically more kinesthetic learners than older students. Kinesthetic learning is learning by doing, for example, learning how to climb a ladder through experience of climbing a ladder rather than by reading about climbing a ladder. Elementary and middle school students prefer hands on and interactive activities, and movement activities often appeal to them (Helgelson, 2011). Physical activity and movement also adds variety to a lesson which in turn keeps students more engaged. When students are engaged it helps lead to fewer classroom disruptions and helps increase on-task behavior from students.

Movement is vital for young children because physical activity aids in the intellectual development of a child's brain (Helgeson, 2011). Movement provides the brain with oxygen, which is needed to feed and create connections between neurons (Jensen, 2005). This connection is important because the part of the brain used during movement activities is the same part of the brain that is used during learning (Jensen, 2005).

Increase in Overall Student Health

Research shows that children who participate in daily physical activity, which is defined as a behavior beyond rest, have increased physical fitness, increased bone density, a reduced risk of obesity, decreased risk in cardiovascular disease, and a lower risk of experiencing depression (Castelli et al., 2014). On the other hand, if students engage in sedentary activities, have too much screen time, get insufficient sleep, or have poor eating habits, they are less likely to engage in developmentally appropriate learning activities (Castelli et al., 2014). Students need daily movement to help their bodies and brains learn best while at school.

For the purposes of understanding what physical activity is, we can categorize it in four different ways. There are four categories of physical activity that require different amounts of effort. The activity levels increase as we go through each category. According to The National Academic Press (2013), the four levels of physical activity are sedentary activity, light-intensity activity, moderate-intensity activity, and vigorous-intensity activity. Sedentary activity includes sleeping, lying down, sitting, and watching television, while light-intensity activity includes standing, slow walking, making the bed, or cooking. Moderate-intensity includes activities such as table tennis, walking, and ballroom dancing. Vigorous-intensity includes activities that are more athletic such as running at various speeds, shoveling snow, and mowing the lawn. According to Bark (2018) a good balance of all four types of physical activity keep the body active and physically healthy, but having exposure to moderate and vigorous activity is needed as it helps keep the body in good physical shape (p. 13).

Conclusion

This section discussed the benefits of incorporating physical activity into the classroom. Adding physical activity in the classroom helps students in many ways. An increase in academic achievement, an increase in on-task behavior, and an increase in physical activity are the main points that were discussed.

In the section above, studies were discussed that show that children who are more active exhibit better focus, faster cognitive processing, and more successful memory retention than kids who spend the day sitting still (Abdelbary, 2017). Physical activity increases higher order thinking and recall. When students are given the chance to move, rather than sit still while they learn, their academic performance is enhanced. Movement in the classroom is also an easy way to help students stay focused on learning, stay energized throughout lessons, and helps to work as an effective classroom management tool because it also increases on-task behavior (Helgelson,

2011). Research shows that children that participate in daily physical activity, which is defined as a behavior beyond rest, have increased physical fitness, increased bone density, a reduced risk of obesity, decreased risk in cardiovascular disease, and a lower risk of experiencing depression (Castelli et al., 2014). All of these pieces of research show the benefits of incorporating physical activity in the classroom.

In the next section, physical activity in the classroom will be discussed. We will find out what physical activity in the classroom is, ways to implement physical activity in the classroom, how teachers can implement physical activity in their classrooms, and their feelings about doing so. This section will finish with talking about a program that has been created to increase physical activity in the classroom.

Physical Activity in the Classroom

Introduction

In this section physical activity in the classroom will be discussed. I will highlight what classroom physical activity looks like, how teachers can implement physical activity in their classrooms, and how they feel about implementing physical activity. The section will conclude with a discussion of a program that has been created to increase physical activity in the classroom. This section will help answer my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?,* as it will give specific examples of how teachers are already incorporating physical activity in their classrooms to increase learning.

Physical Activity Defined

Physical Activity is the process of engaging in bodily movement that results in energy expenditure, and it is essential for good health (McKenzie & Kahan, 2008, p. 171). Physical

activity in the classroom is any type of movement that students participate in while at school. Physical activity in the classroom can be done for fun, just to get students up and moving, or physical activity in the classroom can be used to teach an academic skill. Adding physical activity while teaching is a way that teachers can encourage more movement while increasing student engagement. According to Catunda, et al., (2017) students that participated in school-based physical activity had better academic performance than those who did not participate in physical activity (p. 2). It is important that we take the research that has been done about how physical activity positively affects student behavior and performance and apply it in the classroom. One of the ways we can do this is by getting students to move. Any type of physical activity is good. Best, 2010 (as cited by Conyers & Wilson, 2015) said, “the importance of regular physical activity to the developing body and mind cannot be overstated” (p. 41).

Ways to Incorporate Physical Activity in the Classroom

Schools exist in all communities, are attended by nearly all children, provide safe environments, and often have facilities, equipment, and trained personnel inside of their buildings. Therefore, schools have been identified as the institutions with the primary responsibility for promoting physical activity (McKenzie & Kahan, 2008, p. 173). Physical activity in the schools can take place in many different forms. Classroom physical activity can be included in class content, for example having children jump every time they hear a verb in a story. Physical activity can be utilized during transition times between class subjects, by walking to a different area of the room, or strictly as a pause in the current instruction (Dinkel, et al., 2017). Conyers and Wilson (2015) stated that Rose, an instructional media specialist at a Florida primary school, employs "brain breaks" as a way to incorporate movement into library activities (p. 5). Brain breaks are short 3-5 minute activities that students do either following a music video, singing, dancing, or other type of movement activity. Another way to help students focus is to

make information seem newly relevant every 10 minutes within a lesson, especially if learners are passively sitting and listening. As you approach the 10-minute point, mix it up a bit by telling a joke, playing a song, or even asking for a show of hands (Ostroff, 2005). Most students really enjoy these opportunities to move and have fun while doing these short breaks. Encourage children to move as they travel to and from school, at recess, during physical education, and during and between lessons (Conyers & Wilson, 2015). Despite academic pressure, schools can serve as prime opportunities to improve children's physical activity because the vast majority of children attend, 97% according to Dinkel et al., and spend a large amount of time in schools, 6 or more hours/day, and 180 days/year, according to Dinkel et al. (Katz, 2005; Peterson & Fox, [as cited by Dinkel et al., 2017]).

Teachers Can Implement Physical Activity

Public health entities throughout the world have advocated for an increase of physical activity opportunities for children. When teachers implement physical activity throughout the day, or even better, throughout the whole school, physical activity is no longer isolated to recess or physical education classes nor is it the sole responsibility of physical education teachers. Classroom teachers, who provide core instruction in academic areas such as math, reading, writing, science, and social studies, are intentionally embedding physical activity into their teaching strategies throughout the entirety of the school day (Dinkel et al., 2017). When teachers implement classroom based physical activity, or increase their use of it, this will benefit all children and increase the amount of physical activity children get each day.

Incorporating physical activity into the classroom can take place in many different ways. Classroom physical activity can be included in class content, for example, by having children jump every time they hear a verb in a story. Physical activity can also be utilized during

transitions between class subjects, for example, walking to a different area of the room. Physical activity can also be used strictly as a pause in the current instruction (Dinkel et al., 2017). According to Dinkel et al. most educators feel positively about using and implementing classroom physical activity and can identify the physical, mental, and academic benefits of using physical activity with children (2017). Teachers have been more likely to use classroom physical activity when they can understand the benefits of incorporating physical activity into their day and are easy to implement. According to research done by Howie, 2014; McMullen, 2014 (as cited by Dinkel et al., 2017), teachers are also more likely to use classroom physical activity when they can incorporate them into subject matter and when they last 5 minutes or less (p. 6).

Cothranet and Gately et al., 2013 (as cited by Dinkel et al., 2017) found that in an environment of high-stakes testing and strict adherence to the prescribed scope and sequence of curriculum, classroom teachers may be reluctant to implement physical activity into their days or feel they do not have the instructional autonomy to do so (p. 2). If teachers can find ways to tie physical activity to their academic standards and other content areas, they will be more likely to incorporate physical activity into their school days. There are other barriers preventing teachers from implementing physical activity into their classrooms. Some of these barriers include: limited time, lack of infrastructure, not enough materials for activities or the physical space to do them, lack of experience using physical activity with students, concerns about classroom management when incorporating physical activity, personal negative attitudes towards physical activity, or a feeling that physical activity may impede their ability to teach the academic standards (Dinkel et al., 2017, p. 3).

A study was conducted by Dinkel et al. (2017) between May 2014 and February 2015, with 59 preschool through 8th grade teachers in five school districts in the Midwestern United States. Four of the school districts in this study were public and one of the school districts was

private. The teachers in this study were asked about specific programs they used to implement classroom physical activity. Over half of the participants reported they used GoNoodle,a website with a variety of classroom physical activity videos. Over half of the teachers reported they used various forms of general movement to keep their students active (p. 4). The study by Dinkel et al. (2017) had two other teachers from the study describe what they did to increase physical activity in their classrooms. One 8th grade teacher described how she incorporated movement, "we call it four corners where I'll ask them a question and they have to decide what they think the answer is by going and standing in the corner that has it (the right answer)" (Dinkel et al., 2017, p. 6) Another 4th grade teacher explained, "When we do counting I'll have them do jumping jacks when we count it by tens, you know different movements like that (Dinkel et al., 2017, p. 6). Including movement for children in school can take place both indoors and outdoors. The use of nature and outdoors activities promotes positive risk-taking among children as well as the development of motor skills and physical fitness (Bjørgen, 2015).

Programs Created to Increase Physical Activity

Numerous classroom physical activity programs have been developed for teachers. Several classroom physical activity programs have increased children's overall physical activity, their on-task behavior, and academic outcomes (Dinkel et al., 2017). Strauss (2015), a reporter from the Washington Post, wrote an article about the Liink Project, *Let's Inspire Innovation 'N Kids*. The Liink Project was created by Texas Christian University and has been implemented in schools around the United States. The Liink Project is based on improved brain development as a result of physical activity and outdoor exposure throughout the day as well as teaching character development lessons daily. When the Liink Project started, it showed that adding extra recess can improve student discipline, focus and academic success without increasing the length of the

school day or taking time away from classroom activities (Strauss, 2015). Strauss' (2015) report said the following:

> When any human sits for longer than about 20 minutes, the physiology of the brain and body changes, robbing the brain of needed oxygen and glucose, or brain fuel. The brain essentially just falls asleep when we sit for too long. Movement and activity stimulate the neurons that fire in the brain. When we sit, those neurons aren't firing. Study after study has affirmed the importance of play in children's physical and mental health. It helps boost language development, problem solving, risk management, and independent learning skills. Play is linked to improvements in academic skills, classroom behavior, healthy emotional attitudes and better adjustment to school life (para. 3).

Play and physical activity go hand in hand. When students can physically move their bodies during recess, gym, or movement opportunities in the classroom, they have fun.

Conclusion

In this section, physical activity in the classroom was defined. Different ways that teachers can implement physical activity in their classrooms were highlighted, as well as teacher's feelings about implementing physical activity in the classroom. The last part of this section discussed the Liink Project, which is one of many projects that have been designed to increase classroom physical activity.

In the section above, physical activity was defined. Physical activity is the process of engaging in bodily movement that results in energy expenditure, and it is essential for good health (McKenzie & Kahan, 2008, p. 171). Physical activity in the schools can take place in many different forms. Classroom physical activity can be included in class content, for example having children jump every time they hear a verb in a story. Physical activity can be utilized during transition times between class subjects, by walking to a different area of the room, or strictly as a

pause in the current instruction (Dinkel, et al., 2017). Numerous classroom physical activity programs have been developed for teachers. Several classroom physical activity programs have increased children's overall physical activity, their on-task behavior, and academic outcomes (Dinkel et al., 2017). All of these pieces of research helped to show what physical activity in the classroom can look like.

In the next section, I will discuss recommendations from professional and government organizations. The upcoming section will cover how much time is recommended for children ages 5-18 to engage in physical activity as well as some things children at this age can do to stay healthy.

Recommendations from Professional and Government Organizations

Introduction

In this last section, recommendations from professional and government organizations will be highlighted. The amount of time that should be spent engaging in physical activity as well as what types of activities are best for children ages 5-17 will be discussed. These recommendations will help to guide an understanding of my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* Using these recommendations from professional and government organizations will help provide some understanding of what needs to be done in the classroom while children are at school.

Recommendations for Children Ages 5-17

Regular participation in physical activity is essential to the optimal health and development of any child. Physical activity has been associated with numerous health benefits including the development of healthy bones, muscles, and coordination, maintenance of a healthy body weight, reduced levels of anxiety and depression, and improvements in social development ("World Health Organization," 2019). Despite these benefits, less than half of children in the

United States meet the recommendations of engaging in 60 minutes of moderate-to-vigorous physical activity every day ("World Health Organization," 2019). In addition to having a lack of physical activity, children of all ages are spending more time in sedentary behaviors. One of the main reasons for reduced levels of physical activity and increased levels of sedentary behaviors is because of the lack of opportunities for physical activity in places like school. According to the World Health Organization (2019), following the recommendations laid out for children during the first 5 years of life is associated with better motor and cognitive development, psychosocial, emotional regulation, cardiometabolic health, bone and skeletal health, and reduced risk of injuries (p. 7). Children should have a combination of more physical activity, less sedentary activities, like screen time, and plenty of sleep for overall health. The World Health Organization (2019) describes the importance of physical activity for children ages 5 to 17:

> Physical activity is positively related to cardiorespiratory fitness in children and youth, and both preadolescents and adolescents can achieve improvements in cardiorespiratory fitness with exercise training. In addition, physical activity is positively related to muscular strength. In both children and youth, participation in muscle-strengthening activities 2 or 3 times per week significantly improves muscular strength. For this age group, muscle-strengthening activities can be unstructured and part of play, such as playing on playground equipment, climbing trees or pushing and pulling activities.
>
> In addition to physical activity, healthy eating is another important factor in overall well-being. (p. 19)

Healthy eating and physical activity have been associated with increased life expectancy, increased quality of life, and reduced risk for many chronic diseases. Healthy living through healthy eating and regular physical activity reduces the risk for the top three leading causes of

death in the United States, heart disease, cancer, and stroke ("Division of Adolescent and School Health," 2011, p. 5).

Conclusion

In this section, recommendations from professional and government organizations were discussed. These recommendations included how much physical activity is recommended for children ages 5-17 and some suggestions for activities. Research in the section above shows that less half of children in the United States meet the recommendations of engaging in 60 minutes of moderate-to-vigorous physical activity every day ("World Health Organization," 2019). In addition to having a lack of physical activity, children of all ages are spending more time in sedentary behaviors. The recommendations from professional and government agencies support the need for more physical activity in the classroom.

Chapter Two Summary

In Chapter Two, four main topics were discussed to answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* The first topic discussed changes that have been made to primary education that have created a need for physical activity in the classroom. This included topics such as how kindergarten has changed, health concerns for children, the brain body connection, No Child Left Behind, and discussion about children having more sedentary behavior.

The second topic discussed the benefits of incorporating movement in the classroom. The main points in this section were that physical activity in the classroom increases academic achievement, increases on-task behavior and helps with classroom management, and increases the overall health of children.

The third topic answered the question, "what does classroom physical activity look like?" In this section, physical activity was defined and suggestions for implementing classroom

physical activity were shared. In addition to those topics, programs that have been created to increase physical activity during the school day were reviewed.

The last section of Chapter Two concluded with recommendations made by government and professional organizations about what elementary aged students need in regards to physical activity. This section information about what students at this age level need, why they need that amount of physical activity, and some suggestions for ways to stay physically active.

Chapter Two Conclusion

Through the collection and analysis of research conducted in Chapter Two, I was able to find answers to my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* Physical activity is important for children and also adults, and school is the best place to introduce students to physical activity and get them moving. Physical activity promotes on-task behavior in the classroom as well as academic achievement and overall well being for children. Children need to move because their bodies and brains were not built to sit for long periods of time. Implementation of physical activity does not need to be difficult, and teachers should use what they have to do whatever they can to get students moving. Allowing students to move, or at least engage in a change of activity, every 10 minutes will help them stay focused, engaged, and have fun! Elementary aged children should get about 60 minutes of moderate physical activity a day, and this doesn't have to take place all at one time. It can be spread across the day and includes things like recess, physical education, and in class physical activity. This is where teachers can get creative to incorporate physical activity throughout the day and find ways to connect physical activity with learning targets.

Chapter Three Preview

In Chapter Three, I will discuss the capstone project created to help answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase*

learning? My project is a Google Slides presentation with an assortment of videos and activity ideas that other educators can use in their own classrooms to implement more physical activity. In Chapter Three, I will also discuss the research method used for the project as well as the theories behind my research. The project setting and audience will be described and a detailed timeline of the project completion will be covered.

CHAPTER THREE

Introduction

In Chapter Three I will be giving an overview of the capstone project that I have created to help answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* As a kindergarten teacher, I have experienced the negative effects of students sitting more at school and having a more sedentary lifestyles outside of the classroom. Day in and day out I continue to look for activities and ways to keep students moving and engaged in the classroom.

Rationale

My students, both past and present, have enjoyed physically active activities and movement breaks, but I have always wondered if there was a better way to make physical activity more connected to the state standards, which is sometimes referred to in this paper as a learning target, to increase student learning. There have been so many times where I wished I had a resource with different ideas to choose from on a daily basis to keep my students moving *and* learning at the same time. Oftentimes these movement breaks are unplanned, created on the fly, due to the behaviors and wiggles I see from the students in my classroom. What if I had a list of planned and appropriate physical activity breaks that were also tied to state standards? I decided to create a capstone project that would include numerous activities and ideas that teachers could use to get their students up and moving, all while still teaching academic skills. I completed my capstone project using a combination of Adult Learning Theory along with qualitative research methods ("The Principles of Adult Learning," 2018; Creswell, 2014). These theories and methods helped me create an appropriate and useful tool for adult learners to use. I created this capstone project because it is something I have wanted to have and use in my own classroom. I have not been able to find a resource like this, so creating something like this as a part of my capstone

project was the perfect opportunity. I think my students and I will be able to benefit from this resource, as well as other kindergarten teachers in my district and around the state.

Overview of the Project

In the Fall of 2020, my school district moved to distance learning due to the COVID 19 pandemic. This brought upon many different challenges for a kindergarten classroom. It made the need for movement breaks and physical activity more important than ever as students were spending more time on a computer, watching a screen and completing distance learning activities. Even while teaching kindergarteners from a desk, hosting a Google Meet with 22 five and six year old students, I continued to ask myself the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* The kindergarten classroom in this case could be defined as the physical classroom space in a school or a virtual classroom through distance learning! I decided to create a Google Slides presentation for my capstone project that offers activities and video links for teachers to use during their school day that directly tie to some of the most comprehensive Minnesota state standards for English Language Arts and Math. Teachers will be able to use this resource to add more physical activity to their school day all while teaching the Minnesota state standards. Creating a project like this helps to answer my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?,* because teachers will have readily accessible resources for physical activity that are directly tied to the Minnesota state standards to increase student learning.

Research Theories

The main theory I used to create my capstone project to answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?,* was Adult Learning Theory. Adult Learning Theory was created by Knowles in 1968 (“What is

Adult Learning Theory?," 2020). Adult Learning Theory, also called andragogy, is the study of how adults learn and how it is different from how children learn. Andragogy is known as the "art and science of helping adults learn" and Knowles (2020) compared it to pedagogy, which is the art and science of helping children learn ("Adult Learning Theories and Principles"). According to "The Principles of Adult Learning," informed by the work of Knowles and other theorists, there are six principles of adult learners that can serve as guideposts while working with adults (2018). The six principles are: adults must feel safe to learn, adults come to learning experiences with histories, adults need to know why we have to learn something, adults want agency in our learning, adults need practice to internalize learning, adults have a problem-centered orientation to learning, and adults want to learn ("The Principles of Adult Learning," 2018, pp. 1-3). As a kindergarten teacher, I understand how elementary students learn and what they need to be successful. Teaching adults is something I do not have experience with. I leaned on many of the basic principles of Adult Learning Theory to meet the needs of adult learners. According to "Adult Learning Theories and Principles," (2020), Knowles and his andragogy theory say that adult learners are different from children in many ways, including:

> Adults need to know why they should learn something, adults need internal motivation, adults want to know how learning will help them specifically, adults bring prior knowledge and experience that form a foundation for their learning, adults are self-directed and want to take charge of their learning journey, and adults find the most relevance from task-oriented learning that aligns with their own realities. (para. 6)

Adults have previous experiences and want to know how learning something new is going to help them specifically. Adults also want to be in charge of their learning and are looking for task-oriented learning. Creating a project that adult educators can use to increase their classroom management skills and implement in their own way and on their own time, will be a very

meaningful tool. I have included the rationale for my project in the Google Slides presentation and will back up my rationale with sources that I cited throughout Chapter Two of my capstone paper.

Research Methods

In addition to using Adult Learning Theory while creating my project, I also used qualitative research methods. Qualitative research is conducted through observations and collecting information from other sources. Creswell (2014) states:

> Qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data. The final written report has a flexible structure. Those who engage in this form of inquiry support a way of looking at research that honors an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation. (p. 32)

I used qualitative research because I collected research done by others and used that research to come to my own understanding about the benefits of incorporating physical activity in the classroom. Through my own observations and experiences as a kindergarten teacher, the Minnesota State standards, and the information I collected through the literature review in Chapter Two, I synthesized that information to create a Google Slides presentation that other educators can use as a resource to add more physical activity in their classrooms.

Project Setting and Audience

To answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*, I used the school I am currently teaching at as my

setting. I also used the other kindergarten teachers at my school as the audience. The setting for this project is the current elementary school where I teach. It is an elementary school in the suburbs of a large city, in the state of Minnesota. The elementary school is home to over 600 students, kindergarten through 5th grade. There are three sections of kindergarten classes at our school this year. Each kindergarten classroom has between 20 and 23 students. This year, just over 100 of the students at our school have opted to enroll in the school district's Online Learning Academy (OLA), which is offered virtually due to the COVID19 pandemic. I hope that my project will benefit the kindergarten teachers at my school, the kindergarten teachers that are teaching OLA this school year, and other kindergarten teachers in our district and around the state of Minnesota. All kindergarten teachers can benefit from my project as the research found in Chapter Two showed that students who are more physically active at school have higher academic achievement, more on-task behavior, and an increase in physical activity. I hope that more teachers will be willing and excited to implement physical activity opportunities in the classroom by using my capstone project as a resource and guide.

Project Description

I chose to use Google Slides as the presentation tool for my capstone project. Choosing this presentation tool was for two main reasons: I am comfortable using Google Slides to present and I find it very easy to have the Google Slides open on a daily basis so that selecting which activity or movement break you want to do is just a click away. I chose to create an adult presentation because it was the best way to provide all of the ideas and information in one easy to read and access resource. I became very familiar with using Google Slides during distance learning and found that it is a tool many other educators use as well. My Google Slides presentation begins by introducing my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* The presentation then goes

through a brief overview of the rationale for my research question. I thought it would be helpful for other educators to read about some of the ways they could use this resource in their classroom. I decided to include sources that I found and cited throughout Chapter Two of my capstone paper on these slides. I included three slides explaining how to use my project in the classroom and when to use it. The main body of my presentation includes 11 different slides including one Minnesota state standard on each slide. The standards are grouped by English Language Arts and Math standards. For each state standard, there are one to four activities or video links posted.

To complete my capstone project, the first thing I had to do was gather a complete list of the Kindergarten Minnesota State standards for English Language Arts and Math. I decided to focus on English Language Arts and Math standards as these both have more concrete learning objectives, for example: in English Language Arts kindergarten students are learning the alphabet letter names and sounds. In Math, kindergarten students are working on being able to identify, count, and read all numbers 0-31. I then lumped similar standards together and narrowed them down to what I considered the 11 most crucial state standards. These 11 state standards are also standards that I decided are simple enough to tie in with physical activity. Using the research gathered from Chapter Two, I then found or listed activities for each standard that teachers can use in their classrooms. Each activity is either described in detail with suggestions for successful implementation or there is a hyperlink that will take students and teachers to a YouTube video that includes physical activity. I also included the amount of time each activity will take to implement so other people using this resource can choose an activity based on the allotted time that they have. All of the YouTube video links have been put through a video filter called View Pure. This ensures that when the video link is clicked, there will not be any ads at the beginning of or during the video. The activities for each state standard include accessing a video, playing a physical activity or dance along video, singing a song or chant, or a simple physical activity that

can be used to teach each standard and increase physical activity in the classroom at the same time. My capstone project helps to answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*, because the activities are directly tied to the Minnesota state standards for English Language Arts and Math. Teachers can incorporate more physical activity in the kindergarten classroom and increase learning at the same time.

Timeline

The first thing I had to do was gather all of the Minnesota State Kindergarten standards for English Language Arts and Math. I completed this task during the very first part of the 2021 Spring semester. After solidifying the list of Minnesota state standards, I began working through each standard and decided upon which activities would work best for each standard. I had the opportunity to try out some of the activities with my current class of kindergartners before adding them to my capstone project Google Slides presentation. I was also able to test out the user accessibility and format with the Google Slides presentation with my current class of students.. My current class is very active and needs movement breaks frequently throughout the day. Since starting my research for my capstone project in the fall, I have continued to implement more physical activity during the school day for my class. I can tell when my students need a chance to move, and when we have rainy days with no outdoor recess or gym, I try to include even more. This school year, I have built physical activity breaks into our daily schedule. These breaks are most often in the form of a GoNoodle or a Kidz Bop dance along video from YouTube. I wanted to have physical activity that was centered more around academic skills, which is why I thought creating a Google Slides presentation with resources including physical activity tied to the Minnesota state standards for kindergarten would be helpful. I found the format of my capstone project to be very user friendly. I completed the capstone project at the end of the 2021 Spring

Semester. I have been able to share my capstone project with my current kindergarten teacher colleagues. My capstone project is now available for other educators in my district to access and use.

Chapter Three Summary

Throughout Chapter Three, I discussed the capstone project that I created to help answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* In the first part of Chapter Three, I introduced the Google Slides presentation and the rationale for wanting to research how to incorporate more physical activity in my kindergarten classroom. I then went on to give an overview of what the capstone project is and how it can be accessed and used by other educators. To complete my capstone project, I used a combination of Adult Learning Theory and qualitative research methods to find ways to bring meaningful, synthesized information to adult learners. I discussed the setting and audience of my project and then gave additional details about the timeline of my project completion. In Chapter Four, I will highlight the key features of my capstone project and how it can be used in the classroom. I will highlight research that shows the importance of including physical activity in the school day. Due to the need to increase the amount of physical activity that takes place in kindergarten classrooms, my capstone project was designed as an adult presentation that other teachers can access so they are able to implement more physical activity in their classrooms while teaching the Minnesota state standards at the same time.

CHAPTER FOUR

Reflection

Introduction

Throughout my capstone project, I have been working to answer the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* In Chapter One, I gave an overview of my experience in education and introduced the question I wanted to answer. In Chapter Two, I reviewed literature focusing on the topic of physical activity in the classroom. Chapter Three was an introduction of my capstone project, a Google Slides presentation with resources other educators can use to implement more physical activity in their classrooms. In this chapter, I will be giving a reflection of the capstone project process, including key learnings from my research, a description of my capstone project, the benefits my project will provide for other educators, limitations, and the next steps of my research.

Key Learnings

Throughout researching my question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*, I found information that will help me in my career as an educator. In Chapter Two, four main topics were discussed to answer my research question. The first topic discussed changes that have been made to primary education that have created a need for physical activity in the classroom. This included topics such as how kindergarten has changed, health concerns for children, the brain body connection, No Child Left Behind, and discussion about children having more sedentary behavior. In 2009, a report titled, *Crisis in the Kindergarten*, warned that kindergarten in the United States had radically changed over the past two decades and that "developmentally appropriate learning practices" centered on play, exploration, and social interactions had been replaced with highly prescriptive curriculum, test preparation, and an explicit focus on academic skill building (Bassok et al., 2016). A study

done by Dotson-Renta (2016) through the University of Virginia found that, compared to 1998, children today are spending far less time on self-directed learning—moving freely and doing activities that they themselves chose—and measurably more time in a passive learning environment (para. 1). One concern with having too much focus on academic skills is that it might crowd out other important types of learning experiences that help develop social and regulation skills (Bassok et al., 2016). According to the World Health Organization, 38 million children under the age of 5 years old were overweight or obese in 2019. The proportion of children who are overweight has more than tripled since the 1970s (McKenzie & Kahan, 2008, p. 172). This shift in kindergarten plus an increase in child obesity has caused students to spend less time moving and more time sitting during their time at school.

I then went on to share examples of some of the benefits of incorporating physical activity in the classroom. I found that physical activity in the classroom increases academic achievement, increases on-task behavior and helps with classroom management, and increases the overall health of children. I have been using physical activity more than I would in a typical school year and it has helped my current group of students refocus and get ready for the next lesson. In my classroom, we have movement breaks built in to every transition, moving from morning meeting to language arts, clearing up from language arts and switching over to math. I think the routine of movement breaks are helpful so students anticipate they will have an opportunity to move. The resources I created for my capstone project can be used in this same way, but they can also be used for spur of the moment physical activity breaks when teachers can see their students need a chance to move. Studies show that children who are more active exhibit better focus, faster cognitive processing, and more successful memory retention than kids who spend the day sitting still (Abdelbary, 2017). Research has shown there are no negative consequences for making physical activity part of the school day, which should alleviate concerns

that taking time away from core subjects for *play* might decrease grades or test scores (Conyers & Wilson, 2015). Movement provides the brain with oxygen, which is needed to feed and create connections between neurons (Jensen, 2005). This connection is important because the part of the brain used during movement activities is the same part of the brain that is used during learning (Jensen, 2005). Research shows that children who participate in daily physical activity, which is defined as a behavior beyond rest, have increased physical fitness, increased bone density, a reduced risk of obesity, decreased risk in cardiovascular disease, and a lower risk of experiencing depression (Castelli et al., 2014). All of these pieces of research show the benefits of incorporating physical activity in the classroom.

The next section of Chapter Two helped to define physical activity. As an educator, I wanted to know what classroom physical activity can look like. I was able to find research that defined physical activity and offered suggestions for implementing physical activity in the classroom. Physical Activity is the process of engaging in bodily movement that results in energy expenditure, and it is essential for good health (McKenzie & Kahan, 2008, p. 171). Physical activity in the classroom is any type of movement that students participate in while at school. Physical activity in the classroom can be done for fun, just to get students up and moving, or physical activity in the classroom can be used to teach an academic skill. According to Catunda, et al., (2017) students that participated in school-based physical activity had better academic performance than those who did not participate in physical activity (p. 2). When research shows up how beneficial physical activity is for children, I believe we are doing them a disservice if we do not include it during their school day.

The last bit of research I found were recommendations that have been made by government and professional organizations about what elementary aged students need in regards to physical activity. Physical activity has been associated with numerous health benefits including

the development of healthy bones, muscles, and coordination, maintenance of a healthy body weight, reduced levels of anxiety and depression, and improvements in social development ("World Health Organization," 2019). Children of all ages are spending more time in sedentary behaviors. According to the World Health Organization (2019), following the recommendations laid out for children during the first 5 years of life is associated with better motor and cognitive development, psychosocial, emotional regulation, cardiometabolic health, bone and skeletal health, and reduced risk of injuries (p. 7). Children should have a combination of more physical activity, less sedentary activities, like screen time, and plenty of sleep for overall health. All of the recommendations from government and professional organizations support the implementation of more physical activity in the classroom.

The research discussed throughout Chapter Two helped strengthen my belief that incorporating more physical activity in the classroom was beneficial for students and teachers. I learned about how kindergarten has changed and that students are living more sedentary lives, the importance of physical activity for students, ways to include physical activity, and recommendations for the amount of physical activity children need. Even though I was able to find an answer to my question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*, I still had to figure out a way that I could use this information to create a user-friendly resource for myself and other educators to use. My capstone project provided a way for me to share my research, answer my research question, and provide more opportunities for educators and students to include more physical activity in their school day. I will discuss my capstone project in the next section, Project Description.

Project Description

In this section, I will give a description of my capstone project. I chose to use Google Slides as my presentation tool for my capstone project. Choosing this presentation tool was for

two main reasons: I am comfortable using Google Slides to present and I find it very easy to have the Google Slides presentation open on a daily basis so that selecting which activity or movement break you want to do is just a click away. I chose an adult presentation as the project methodology because it was the best way to provide all of the ideas and information in one easy to read and access resource. I became very familiar with using Google Slides during distance learning and found that it is a tool many other educators use as well. My Google Slides presentation begins by introducing my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?* I then go through a brief overview of the rationale for my research question. I decided to include sources that I found and cited throughout Chapter Two of my capstone paper. I included three slides explaining how to use my project in the classroom and when to use it. I thought this would make my project even more accessible and user friendly for other educators to use. The main body of my presentation includes 11 different slides with one Minnesota state standard listed on each slide. The standards are grouped into two different subject areas, English Language Arts and Math. For each state standard, there are one to four activities or video links posted.

To complete my capstone project, the first thing I had to do was gather a complete list of the Kindergarten Minnesota State standards for English Language Arts and Math. I decided to focus on English Language Arts and Math standards as these both have more concrete learning objectives, for example: in English Language Arts kindergarten students are learning the alphabet letter names and sounds. In Math, kindergarten students are working on being able to identify, count, and read all numbers 0-31. I then lumped similar standards together and narrowed them down to what I considered the 11 most crucial state standards. These 11 state standards are also standards that I decided are simple enough to tie in with physical activity. Using the research gathered from Chapter Two, I then found or listed activities for each standard that teachers can

use in their classrooms. Each activity is either described in detail with suggestions for successful implementation or there is a hyperlink that will take students and teachers to a YouTube video that includes physical activity. I also included the amount of time each activity will take to implement so other people using this resource can choose an activity based on the allotted time that they have. All of the YouTube video links have been put through a video filter called View Pure. This ensures that when the video link is clicked on, there will not be any ads at the beginning or during the video. The activities include accessing a video, playing a movement or dance along video, singing a song or chant, or a simple physical activity that can be used to teach each standard and increase physical activity in the classroom at the same time. I chose to use a Google Slides presentation for my project because this resource will be very easy for other educators to access and use.

In this section I gave a description of my capstone project. I explained the rationale behind my choice of creating a Google Slides presentation as well as described the steps I took to complete the project. In the next section I will talk about the benefits of using my capstone project in the classroom.

Benefits to the Profession

One of the main reasons I wanted to create a capstone project like I did was for myself and other educators to use in the classroom. I know and understand the importance of letting children move and be physically active, but I know it can be hard to feel like you have time to fit it in during the busy school day! I think that having a resource like the one I created for my capstone project will help other educators take a chance on incorporating more physical activity in their classrooms. For some educators, I feel they may not be including physical activity in their classrooms because they never have and they do not know how to do it. It can be hard to do something new after you've been teaching the same way for such a long time, but children need

to move and using my capstone project will be beneficial for students and teachers. I also wanted to create something that would encourage me to incorporate physical activity that is directly tied to the Minnesota state standards.

In this section I gave examples of how my capstone project will benefit the teaching profession. I believe having an easily accessible resource like the one I created will inspire even the most veteran teachers to implement more physical activity in their classrooms! In the next section, I will discuss some of the limitations of my capstone project.

Limitations

As I have reflected on the final product of my capstone project, I have discovered some of the limitations. The first limitation of my project is that I am not sure how to make it accessible to more educators. I know how I can share it with my team of kindergarten teachers at my school, I even know how to share it with the other kindergarten teachers in my district. I do not know the best way to share it with other teachers throughout the state and even the country. I originally wanted to make a website containing links to all of the resources that I included in my Google Slides presentation, but I wanted my project to serve as adult professional development for other educators. A website would have been easier for other educators to access, but the Google Slides presentation is much more user-friendly.

Another limitation that I found is that these are the Minnesota state standards, so my capstone project works best for kindergarten teachers in Minnesota. If I wanted to make my capstone project more accessible for the whole country, I could include standards from the Common Core.

In this section I reflected on some of the limitations of my capstone project. The main limitations are distributing my capstone project as well as including standards that apply to a

wider majority of the country. In the next section, I will be discussing the next steps in my research.

Next Steps in Research

Creating a capstone project like this has been really helpful for me in my current classroom. I have a very active group of 22 students, and when I see they need some physical activity, it has been easy for me to select an appropriate activity that ties it to one of the kindergarten Minnesota state standards. In the future, I would like to broaden my resources and perhaps even find some activities for other subjects, like Social Studies and Science. After viewing so many different physical activity videos on YouTube, I have also wondered if I could create some videos of my own in areas that I wasn't able to find something. This school year, I know many teachers have learned how to implement a lot more technology in their classrooms than ever before. I also wonder if I would be able to create some sort of a choice board of physical activity breaks that students could select on their own devices, either depending on their interests or what subject area they need to work on.

In this section, I discussed the next steps in my research. I discussed how I would like to broaden the subjects I include in my capstone project, possibly create my own physical activity videos, and create a virtual choice board for students to use so they are able to self select their physical activity. In the next section, I will be summarizing Chapter Four and my learnings throughout the capstone project.

Summary

Throughout the whole process of researching the question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?*, I found information that will help me in my career as an educator. In Chapter Four, I reflected on my capstone project process. At the beginning of this chapter, I included key learnings from the research presented in

the literature review from Chapter Two. Some of the key learnings included how kindergarten has changed, health concerns for children, the benefits of incorporating movement in the classroom, defining physical activity, and it concluded with recommendations made by government and professional organizations about what elementary aged students need in regards to physical activity. The next section of Chapter Four gave a detailed description of my capstone project. In this section I discussed the type of project I created and the rationale behind why I chose it. The last section of Chapter Four explained some of the benefits my capstone project will provide for other educators, limitations of my project, and the next steps of my research.

At the end of the school day, I am still going to have a classroom full of active and excited five and six year old students. Through answering my research question, *how can teachers incorporate more physical activity in the kindergarten classroom to increase learning?,* I hope that I can increase the amount of physical activity my students get all while increasing their learning of the Minnesota state standards. If I can make this change in my own classroom and other classrooms around the state, then I feel my research has been successful!

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