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How Incorporating Physical Activity and Movement into the Kindergarten Curriculum Will Help to Keep Students Engaged and Increase Their Academic Success

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A MOVEMENT BASED KINDERGARTEN CURRICULUM FACILITATING
MATH AND READING STANDARDS

by
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A capstone submitted in partial fulfillment of the
requirements for the degree of Master of Arts in Teaching.

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The research and curriculum writing that was done for this capstone answers the question of how incorporating physical activity and movement into the kindergarten will help to keep students engaged and increase their academic success. The current epidemic of childhood obesity and the push for all students to perform better on standardized tests lead to this capstone question. This capstone explores different ways to incorporate movement into the classroom to help students get the recommended sixty minutes of physical activity a day all while improving learning. It also explores other areas such as nutrition, breakfast in the classroom and different ways that schools can improve the health and well being of all their students. The curriculum that was written for this capstone uses movement in all academic areas throughout the entire day.

CHAPTER ONE

My Capstone Story

The Question

As an elementary teacher, I want to make sure I am meeting the needs of all my students, both academically and physically. I am passionate about health and fitness and feel strongly that kids today are not getting enough physical activity. My passion for ensuring that my students are physically active leads to my capstone question how I can use understanding by design (McTighe & Wiggins, 2005) as a curriculum development model to create a kindergarten curriculum that integrates physical activity while supporting the academic standards set by the school district in which I work?

I am currently a 2nd grade teacher, prior to teaching 2nd grade I taught kindergarten for two years. I often see my students bringing lunches to school that include high calorie foods that have very little nutritional value. The same children that bring lunches with no nutritional value are often the same ones that sit on the ground or physically cannot do the activities that require physical movement. If these children continue to eat nutrient-deficient foods they may develop health problems, as they get older.

Children who eat snacks and lunches with little nutritional value may not have someone at home teaching them how to eat healthily or encouraging them to get up and play. Some families may not have the time or resources available to them to promote a healthy lifestyle. This is when it becomes the responsibility of schools and teachers to

educate these children about living a healthy lifestyle. Supporting my belief that schools need to promote a healthy style is a 2014 report from the Centers for Disease Control and Prevention (CDC) that found a healthy diet and active lifestyle help students keep their grades up, stay in class, and control behavior problems. While the news was not a surprise to educators, it helped spur district leaders around the country to adopt aggressive wellness programs alongside academic reforms. Some districts even have entire schools built around healthy lifestyles (Schimel, 2015). My hope is that, by educating children at a young age about the importance of exercise and nutrition, we can help them continue to live a healthy lifestyle and find academic and personal success. This is extremely important to me as exercise has positively impacted my life as explained in the next section.

My Story of Exercise and Nutrition

Exercise has improved my life. Last year, I got up every morning at 4:30 a.m. for a Crossfit workout. I was never a morning person but found that exercising in the mornings gave me the energy that I needed to get through a day with 21 5-year-olds. I found that I was a much better teacher when I worked out before school. I also noticed that I had a lot more patience, more energy, and a much more positive attitude. This year, I switched schools and can no longer get to the gym before school. I still get my workouts in after school, but I miss the endorphins first thing in the morning.

Exercise is easy for me; it is with the nutrition part that I struggle. Growing up, I was not aware of good nutrition. We were not an unhealthy family; we were just busy and ate what was convenient. My mom worked full-time as a teacher, and my dad was a truck driver and gone during the week. My brother, sister, and I were in activities that

kept us busy at night. We rarely sat down together at the dinner table for a meal. It was not unusual to grab a slice of pizza from the gas station or have sugared cereal for dinner because it was easy and we needed something that was quick. I was never forced to eat fruits and vegetables and now struggle to get them into my diet as an adult. I was always active in sports in high school and rarely had a time when I did not have a practice of some sort. Because of this, I was able to eat whatever I wanted and not gain extra weight. When I went to college and no longer had 2-hour basketball practices a day, I found myself gaining weight because I was still eating the same amount of food. This is why I feel it is so important to educate children on the importance of a healthy lifestyle so that it is something they take with them as they become adults.

I understand that some families today are burdened with financial difficulties and are not able to provide their children with the kinds of organized activities that enable them to get the daily physical activity they need. This is why they must be able to play and run at school and get the exercise they need to be successful. My belief in the importance of physical activity made me thankful that I was hired at a school that supported me in this area.

I taught kindergarten at a magnet school where the focus is health and fitness. When researching the school for my interview, I fell in love with the idea of teaching at a school that values and educates children on the importance of a healthy lifestyle. Since I have started working there, I have seen how the teachers work together to educate their students and find new and different ways for them to learn. As I walked through the school on my first day, I noticed that the hallways were also used as an indoor track. On the walls, they have signs for different activities students and teachers can do when they

need a break. These signs say things like, *Do Wall Sits, Jumping Jacks, Lunges*, and so on. For snack, the school provides a fruit or vegetable for each child K–4, which is a great way for some students to try things they might not get at home.

When I walked into my classroom and met my students, I was shocked by how far below grade level some of them were. A lot of them came from low-income households and had never been in a school setting. There were several Spanish-speaking students who understood very little English. I immediately wondered, “How am I going to get these 22 kids to grade level?” I started thinking about how I could incorporate fitness into math and reading lessons.

I also wondered if adding movement activities would help to keep the class engaged and focused (Koch, 2013). There is so much teaching time that is lost when a teacher has to redirect bad behavior because students are not engaged. I want to find different ways to meet the state standards while integrating movement throughout the day. Not only will this help to give my students the physical activity they need, but it will also make learning fun. Students will hopefully be more engaged and will become more passionate about learning. Having engaged students is extremely important given other societal factors influencing schools.

Society Today

Society in the United States seems to be all about convenience (Basch, 2011) and less about what is good for us. For some families eating at McDonald’s is easier than eating at home. Children play video games for hours instead of playing outside. They eat fruit snacks instead of fruit. All of these things have made us an obese and unhealthy society (Lanigan, 2011). If parents do not have the time or resources to teach their kids

how to live a healthy lifestyle, maybe their kids can teach them. If teachers provide children with the knowledge and tools to do this at school, they may go home and share what they have learned. Today's children are the first American generation whose life expectancy may be shorter than their parents' due to the dramatic rise in obesity (Belluck, 2005).

Today, schools have to cut physical education and are taking recess time away to have more time to focus on academics. I used to teach at a school where the kids only had 15 minutes a day for recess and gym once every 6 days. I now teach in a school where they are given 30 minutes every day for recess and gym four times a week for 30 minutes. In most schools children spend so much time in the classroom and less time on the playground, so, as teachers, we need to find new ways to incorporate movement into the classroom.

The movement-based curriculum I will develop as my capstone will be used as a starting point for myself and other teachers also interested in increasing activity in their classrooms. In creating my movement-based curriculum I want to demonstrate how movement activities can be incorporated into all academic areas throughout the day. I also want to design a curriculum that can be adapted to be used in upper and lower elementary classrooms. My curriculum will use movement activities that can be added without a lot of extra prep or materials.

My overall goal is to have this curriculum as a tool to enhance learning by using physical activity. It is my belief that physical activity and movement can be added to classroom environment without taking away from academic time. For an example, in the state where the curriculum is developed one Kindergarten state standard is, students can

represent quantities using whole numbers and understand relationships among whole numbers. I was able to develop a movement-based curriculum that used several counting songs and dances videos to help practice this skill.

Conclusion

This capstone focuses on how to add physical activity and movement into math and language arts classes for kindergarten students. By doing this, I hope to engage my students and provide them with the tools they need to live a healthy lifestyle. My long-term goal is that by increasing the engagement of my kindergarten students there will be a corresponding increase in their academic achievement although that aspect was not addressed in this capstone.

Chapter Two presents a literature review of studies on the importance of incorporating physical activity into the classroom to improve children both physically and academically. In Chapter Three, my purposed curriculum is presented to demonstrate how physical activity can be an essential element in lesson plans and daily routines. Chapter Four provides lessons to be used throughout the school year. Chapter Five provides reflection on the overall project outcomes and suggestions for future research.

CHAPTER TWO

Literature Review

Chapter Overview

The main question examined in this literature review is how I can use understanding by design (McTighe & Wiggins, 2005) as a curriculum development model to create a kindergarten curriculum that integrates physical activity supporting the academic standards set by the school district in which I work? This literature review will talk about the activity level in U.S. classrooms and its importance; it highlights the benefits of physical activity and health factors facing the students in our country. In this chapter you will also find a section on nutrition and the positive outcomes it has at school as well as the positive outcomes recess has on students. Finally, this chapter will look at physical activity and learning and curriculum supporting the integration of physical activity and healthy nutrition. This chapter will show what active movement in the classroom looks like and why doctors, government leaders, and teachers feel that getting children active is important.

Activity Level In U.S. Classrooms and It's Importance

According to Bridging the Gap (2012), schools are not meeting the national requirements for physical activity practices. The research group stated that only 22 percent of elementary students attended a school in 2009–2010 that offered at least 150 minutes of physical education classes per week, and 77 percent attended a school that offered only 20 minutes of daily recess.

Koch (2013) stated that children today spend a majority of their day sitting at their desks, minimizing movement and maximizing sedentary learning. This style of learning,

(Swartout & Milder, Thissen, 2013) is having a negative effect on children's academic performance and on their overall health. Koch (2013) goes on to say that physical activity has been linked to academic success and needs to be incorporated into classrooms to increase learning and help decrease childhood obesity. According to Koch (2013), students who spent at least 50 minutes a week engaged in physical activity scored better in math, reading, and language arts than students who did not have any physical activity.

Even though Koch (2013) recommends 50 minutes of physical activity for students I am also aware of the tremendous pressure myself and other teachers are under to ensure that every student meets the state academic standards and how this can increase the difficulty of scheduling time for activity breaks. Given the increased academic pressure on my colleagues and it makes sense to follow Koch's (2013) suggestion to develop academic lessons that also integrate physical activity. I agree with Koch (2013) that doing this will maximize academic learning and at the same time give students the opportunity to be physically active throughout the day.

A starting place recommended by Koch (2013) is to add physical activity breaks during transitions between subject areas as this can help students to refocus their attention and enable them to stay on task during the next lesson. Adding these physical activity breaks at transitions can (Koch, 2013) take only 20 minutes for a decrease in neural connections in the brain to occur during inactive learning, which results in shorter attention spans. Koch (2013) describes how integrating movement can be as simple as doing jumping jacks while saying letter sounds or running in place while counting to 100. Incorporating these types of physical activity into a lesson provides an opportunity for all students to become active rather than sedentary participants in their learning. One benefit

of having all students active, noted by Koch (2013), is that students who are not motivated academically may become motivated once physical activity is added to curriculum. A second benefit is that incorporating academics and physical activity can also have a positive effect on the students who are solely motivated by academics and have no interest in physical education (Koch, 2013). Supporting the importance of moving from sedentary learning is Jack Olwell (as cited by Estrada, 2012) president of the Minnesota Association of Health, Physical Education, and Dance.

Olwell stated,

It's more than a theory. It's a well-established fact, the more active you are the more brain cells you create. . . . If you really want to increase your test scores you have to get off your seat you have to get on your feet, you can turn it around in a year. You can turn it around quicker than that. If you stand up – just stand up – you improve brain activity by eight percent. (as cited by Estrada, 2012, ¶ 6).

Estrada (2012) also notes how in 2010 the Center for Disease Control and Prevention (CDC) supported the push for physical activity in schools and stated, “There is substantial evidence that physical activity can help improve academic achievement, including grades and standardized test scores” (¶ 8). One case study, used to support his (Estrada, 2012) connection of the link between physical activity and academic achievement is based on the Meadowview Elementary School in Farmington, Minnesota.

Due to increased pressure to raise reading test scores, Meadowview Elementary School in Farmington, Minnesota, increased physical activity. Estrada (2012) reports that Meadowview students who added movement to their day showed improved scores. Some Farmington teachers went further. One of them Anne Shadrick (Estrada, 2012) had her

third graders chew gum, jog in place, and do calisthenics before taking a test. She also had her students stand on spooner boards (curved boards) and balance while reading or working on math. Shadrick (as cited by Estrada, 2012) said, “It’s not just moving, you’re actually studying reading or math when you are moving. It makes the academic learning more efficient. I’ve seen incredible leaps with my students” (¶ 15). Shadrick (as cited by Estrada, 2012) also shared a story about a student in a special reading group who needed additional tutoring until physical activity was incorporated into the classroom. After physical activity was integrated into her classroom the special education student improved some much that she was then was being tested for the talented and gifted program.

Estrada (2012) reports how the Farmington schools used Naperville Central High School near Chicago as a model for their program. Accord to the author, Naperville Central High School, has one of the lowest obesity rates in the country and was ranked sixth in the state for math and first for science throughout the country in 1999. The success of Naperville Central High School came shortly after they started incorporating more physical activity into the school day. Naperville Central’s students take yoga classes, read while riding stationary bikes, and wear heart rate monitors. Estrada reported a school official said, “The academics was a byproduct, the more kids move, the more they learn. Exercise really prepares the brain for learning” (Estrada, 2012, p. 3).

Even though schools like Naperville Central High School are having positive outcomes after integrating more physical activity Knobbe (2010) describes other schools where administrators have cut their physical education programs in hopes of improving their standardized test scores. The schools reducing physical activity are under pressure

to allot more time in the day for reading and math, which leads to less time for physical education. Knobbe (2010) describes how schools are at risk of losing government funding if their test scores do not reach the No Child Left Behind (NCLB) standards which force some schools to choose between academics and physical education. Charlie Kyte, executive director of Minnesota Association of School Administrators (as cited by Knobbe, 2010) stated,

They asked us to do two things: see to it that our kids are eating more nutritious food in school and that schools have more physical education and activity but they haven't taken one iota off of us for kids to do better in math. (¶ 19)

While administrators are struggling to meet the academic demands of NCLB research continues to support the value of having physical activity as part of the learning environment.

For example, a recent study complete by The University of Illinois reports on how physical activity turns on the brain and improves academic performance (Minnesota Department of Health, 2013). The University of Illinois study compared a group of 9–10-year-olds. One group walked for 20 minutes prior to taking a test, and the other group sat quietly for 20 minutes. The former group responded more quickly and made fewer errors than the latter. This study found that physical activity increases brain activity, which leads to academic learning (Minnesota Department of Health, 2013). Studies such as the one by the University of Illinois support the efforts of other groups such as the Center for Disease Control (CDC).

The CDC started a campaign to promote physical education, recess, classroom-based physical activity, and extracurricular physical activities (Minnesota Department of

Health, 2013, p. 9). The goal of the CDC campaign was to ensure that educators are aware of how physical activity adds to learning instead of distracting from it. Their slogan said it all: “The more they burn, the better they learn” (Minnesota Department of Health, 2013, p. 9).

The CDC campaign seems to be meeting its goal as today some physical education programs are starting to transform their curricula from implementing traditional competitive team sports or other organized group activities to a program that includes more independent physical activities (SPARK, 2011) These alternative curricula will reach the children who are not natural athletes and find little enjoyment in competitive sports (SPARK, 2011) and who may be at greater risk of childhood obesity. To promote a healthy and active lifestyle for all students’ schools need to be incorporating activities that attract a wide range of students not just those drawn to athletics. For example, activities such as skateboarding, yoga, dance, and martial arts are a few activities that have been added to many physical education curricula (SPARK, 2011).

Skateboarding is an activity that can be introduced at school and also done independently at home. According to the anti-childhood obesity organization SPARK (2011), skateboarding is a great way for children to get exercise while improving balance, agility, coordination, and self-esteem. A physical education teacher’s job is not only to get kids moving and active but also to expose them to a variety of sports and activities that they enjoy and will continue to do as they get older. The focus on life long physical activity is changing the ways schools design their physical education (PE) programs.

Salm (2014) provides an example of how a physical education program in Campbell, Wisconsin schools is changing. The Campbell PE programs focus on personal goal setting, skill building as opposed to competitive games, and introducing the basic rules of certain sports so that students understand sports beyond simple competition. The Campbell PE program also offers a wide variety of activities for their students as jump roping, roller skating, outdoor winter games, daily fit logs, tai kwon do, super stations, and after-school fitness clubs (Salm, 2014). While physical activity is important for K-12 students it is as important for children to be physical active before entering kindergarten.

Benefits of Physical Activity

According to many researchers (Let's Move, 2015), children need at least 60 minutes of physical activity each day to maintain a healthy lifestyle. The Let's Move website continues that along with healthy eating, physical activity can prevent obesity, build lean muscle, reduce fat, and promote strong bone, muscle, and joint development. It improves mental health by relieving symptoms of depression and anxiety and increasing self-esteem (Let's Move, 2015). Krakow (2011) describes another reason why it is important for children to be physically active even before they reach elementary school.

According to Krakow (2011) it is during these early years children start to develop healthy behaviors and habits that will stick with them into adulthood. Having young children being physically active is important given that within the last 10 years, Krakow (2011) notes how studies have shown that children 5 and under are not getting the proper amount of daily physical activity, which is leading to the rise in childhood obesity among this age group. In addition to preventing childhood obesity Krakow

(2011) describes how over weight children under 5 are at risk for high blood pressure, bad cholesterol, respiratory difficulties, cardiovascular diseases, and bone problems when they get little to no daily physical activity. In addition to the medical risks when young children are not active Krakow (2011) describes how physical activity also plays a key role in the development of a child's fine motor skills, psychological well-being, cognitive development, social competence, and emotional maturity.

So while physical activity is important for pre-school children, Krakow (2011) also notes there are different levels of intensity that are appropriate for this age group. For example, light intensity would include standing and painting, playing dress-up, and going for walks. Moderate-to-vigorous activities consist of running, jumping, ball games, gymnastics, swimming lessons, playing on the playground, and dancing. It is hard to say exactly how much physical activity children 5 and under may need but Krakow (2011) describes studies indicating that 1 to 2 hours a day of both structured and unstructured physical activity is adequate for a child this age. Certainly, once a child starts walking, moderate-to-vigorous activities need to start taking place daily (Krakow, 2011).

As this age group spends a majority of their time at home (Krakow, 2011) instead of in a school setting, it is crucial for parents to set a positive example for their children.

According to Krakow (2011)

Children tend to be more active if their parents participate in physical activity and are active with them and if they spend more time outside. This means that parents should model healthy physical activity behaviors by being active themselves, and by interacting with their children in physical activities such as bike riding, walking and active play. (p. 2)

In addition to modeling being physically active Krakow (2011) recommends that parents need to do more than just limit the amount of screen time that their child gets during the day. They need to encourage their child to get outside and be active. Krakow (2011) also notes that there are gender differences associated with being physically activity.

Krakow (2011) identifies studies that indicate boys are more active than girls, so the number of obese boys is lower than the number of obese girls. The author suggests that girls may not enjoy being outside or being active, but it is equally important to encourage girls to get outside for moderate to vigorous play as it is for boys. In addition to Krakow (2011) the New South Whales Ministry of Health, NSW Department of Education and Communities, and the Heart Foundation stated, “physical activity is vital for a child’s development and lays the foundation for a healthy and active life” (Healthy Kids, 2014, (¶ 1).

These agencies also state the benefits of physical exercise in children include: Helping to achieve and maintain a healthy weight, building strong bones and muscles, improving balance, coordination and strength, maintaining and developing flexibility, improving posture, assisting with the development of gross motor and fine motor skills, providing the opportunity to develop fundamental movement skills, helping to establish connections between different parts of the brain, improving concentration and thinking skills, improving confidence and self-esteem, relieving stress and promoting relaxation, providing opportunities to develop social skills and make friends, and improving sleep. (¶ 3)

Another voice in the value of children being physically active is described by Haitham, a teacher at the Core Child Program. Haitham states that “sports and exercise improve children’s self-confidence, ability to connect with others, the understanding of teamwork, and respect for their peers” (Tomorrow’s Youth Organization, 2011, Monthly Archives October 2011, The Importance of Fitness In Early Childhood Education, ¶ 2)

Health Factors Facing U.S. Students

There is a serious epidemic facing America’s youth. One in three American children is overweight or obese, and this number has nearly tripled over the last three decades (Lanigan, 2011; Green, Riley, & Hargrove, 2012). Not only can obesity lead to type II diabetes, cardiovascular disorders, asthma, sleep disturbance, and joint and bone disorders, it can also lead to social rejection and low self-esteem (Lanigan, 2011; Green et al., 2012). The chances are much higher for children who are obese to become overweight adults. Green, et al. (2012) stated that one reason for the alarming rise of overweight or obese children is that they use significantly less energy throughout the day than their parents or grandparents did when they were their age. Children today spend a lot of time doing activities that do not require a lot of extra movement. The authors also noted that families are eating more fast and processed foods than they did a decade ago.

These authors (Lanigan, 2011; Green et al., 2012) also note that of the more than 23 million American children who are either obese or overweight, 23 percent of those children are living in poverty. In addition to the connection between poverty and childhood obesity the website Let’s Move! (2015), a program started by First Lady Michelle Obama to solve childhood obesity, describes how nearly two in five Hispanic children between the ages 2–19 are overweight or obese. While childhood obesity is

affecting children from all populations, it is growing the fastest among the Hispanic population. Let's Move! (2015) also reports that nearly 40% of African American children are overweight or obese, and 11 percent of whom are 2–5 years of age. In fact, according to Let's Move (2015) the highest prevalence of childhood obesity among any group is that of African American adolescent girls between the ages 12–19.

Child obesity also affects psychological health. Frost, Brown, Sutterby, and Thornton (2007) stated that children who are obese or overweight are often victims of ridicule, torment, and prejudice from both children and adults. According to the authors negative behaviors toward obese or overweight children can lead to depression, low self-esteem, negative self-image, and possible withdrawal from peers. It is hard to believe that a prejudice toward overweight or obese children can start as young as preschool, but Frost et al. (2007) describe how children view their peers who are overweight as lazy, sloppy, dirty, stupid, ugly, less likely to have friends, less liked by parents, less likely to do well at school, less satisfied with their appearance, and more likely to be teased. Unfortunately Frost et al. (2007) noted how the judgments placed on overweight or obese children do not just go away but generally these children suffer into adolescence and adulthood. While the emotional impact of childhood obesity can be significant the nutrition that plays a part in becoming obese also can impact brain development (Basch, 2011).

Nutrition and Positive School Outcomes

Basch (2011) describes how children's diets have profound impact on overall health and well being. The author states that poor nutrition can affect a child's brain development, which can lead to lifelong cognitive effects as well as adverse effects on

growth and development. Basch's (2011) research addressed the importance of breakfast and an overall diet full of fruits, vegetables, protein, and whole grains for children because it can be addressed at school.

Basch (2011) reports that there are many reasons why a child's nutritional needs may not be met at home as millions of American households struggle to provide the proper nutrition for their families. For example, according to Basch (2011) families are often busy and eat what is convenient, whether it is fast food or processed, inexpensive food from a box. Another reason identified by Basch (2011) is that fresh, healthy foods are not always a necessity in lower income households due to the higher costs. Often, families get a bag of chips they can eat for a week for the same price it would cost to buy three apples. Basch (2011) notes competing priorities for low-income families for example noting that some parents have a harder time providing for their family during the winter months due to higher heating costs.

The overall outcome of poor nutrition among children according to Basch (2011) is that it can lead to physical and mental health problems, emotional and behavioral problems, learning deficiencies, lower math grades, repeating a grade, and an overall poor quality of life. While neither schools nor educators can completely solve the hunger and poor nutrition problems that their students face, Basch (2011) believe that these problems can be addressed to some extent while at school. The author notes how food assistance programs at Pre-K-12 schools help to provide a balanced lunch as well as breakfast for students every day.

There are many reasons Basch (2011) identifies as to why many students come to school hungry. The reasons include not having time for breakfast, students not being

hungry when they get up, or living in a home where there is nothing to eat. In addition Basch (2011) describes how overweight adolescents may often skip breakfast as a way to maintain or lose weight. The education level of parents, according to Basch (2011) also impacts which children skip or eat breakfast, with the children of more highly educated parents being less likely to skip breakfast.

Basch (2011) describes many of the outcomes of eating or skipping of breakfast. He notes how it has often been said that breakfast is the most important meal of the day because breakfast comes after several hours of sleep. During sleep, no food is being consumed, so the timing of breakfast affects how the body and brain respond to the food that is eaten. Basch (2011) suggests that breakfast plays an important role in a child's educational outcomes and leads to an increase in school attendance and a decrease in tardiness. For example, Basch (2011) describes how parents are motivated to get their child to school on time and receive a full day's education when a free, healthy breakfast is provided for them. When breakfast is offered at school, it provides every child the opportunity to start their day in a positive, healthy way. Numerous reports have proven how important a good breakfast is for children to succeed in school and maintain a healthy lifestyle (Basch, 2011).

For some children, it is still a struggle to get to school early enough to eat in the cafeteria. Therefore, Action for Healthy Kids recommends schools serve breakfast in the classroom (Grisby, 2011). This program provides all students with the opportunity to have a well-balanced breakfast every morning. When students arrive at school, they spend the first 10–15 minutes at their desks eating breakfast delivered by cafeteria staff. Some teachers might cringe at the idea of breakfast's being served in their classroom

every day because of the mess and the loss of instructional time. However, Action for Healthy Kids (Grisby, 2011) found that the teachers who have implemented breakfast in the classroom have become the biggest supporters of it. They found that the benefits of having a well-fed class outweigh the negative aspects of eating in class. Gisbry (2011) describes the reaction of one principal supportive of having children eat in their classrooms.

Gisbry (2011) reports that Principal Endicott of Ogilvie Elementary in Minnesota believes that students' test scores have improved as well as student behavior as a result of eating breakfast. Endicott stated:

It's simple: hungry students can't focus. But students who eat breakfast have the best opportunity to reach their potential. Yet even that is only part of the equation. The routine of coming right off the bus into the classroom has made a huge difference for us as far as getting directly into learning . . . Our teachers would tell you that we have the quietest elementary in the state in the morning. It's incredible. Our kids come in. They go to their rooms. They get their breakfasts. They get going and they love it and the teachers love it. So I think it has positively impacted our learning. (¶ 2-3)

Gisbry (2011) also notes that in the 2009–2010 school year, the school had a 20 percent increase in their state test scores. Endicott states that Breakfast in the Classroom contributed to the rise:

What we have found is that, in order for us to effectively teach the kids that we have coming, we need to meet some of their social, emotional needs before that learning happens at its peak. And the school Breakfast in the Classroom program

is one of the ways we meet some of those kids' social, emotional needs. And, instead of focusing on "I'm Hungry" or focusing on "What I don't have," they're able to focus on being at school and learning. (§ 5)

Ogilvie Elementary has also seen a rise in the number of children who eat breakfast at school.

Since adding Breakfast in the Classroom, they went from serving 70 children a day to 300. A majority of the children there are living in poverty, so Breakfast in the Classroom is providing a healthy breakfast to children who would often come to school hungry and have to go without breakfast. In addition to having breakfast the review of the literature for this capstone found evidence of the contribution of recess to overall health and academic achievement.

Recess and Positive School Outcomes

While recess might be a child's favorite part of the day, it is also beneficial for a child's health and academic performance. The National Association for Sport and Physical Exercise (2015) encourages schools to offer at least 20 minutes of recess each day to enhance learning and cognitive development. Recess also provides students with a chance to move around and socialize with their peers.

A study done by Active Living Research in (Troost, 2009) looked at the positive impact recess has and how it can benefit each child. Their research found that children who had at least 15 minutes of recess were more attentive during class and had fewer behavioral problems. Recess also provides children with the opportunity to get active minutes that count toward the recommended 60 minutes a day. Troost (2009) also provided four strategies for improving the levels of physical activity that children get

during recess. One recommendation is that schools provide inexpensive playground equipment like flying discs, plastic hoops, jump ropes, beanbags, and balls and train recess supervisors to lead organized activities and teach children games that promote physical activity. A second recommendation is for schools to include something as simple as painting four-square courts, hopscotch, mazes, or murals on the playground as this also can increase physical activity.

A third recommendation is for schools to set up the playground so that organized games, free play, and games that may need special equipment have their own area will also help to increase the amount of physical activity that occurs during this time. The fourth and final recommendation recommend by Trost (2009) is for schools to have trained recess supervisors. The author reports that schools using untrained recess supervisors do not provide as many opportunities for physical activity. When all four of these recess techniques are used, Trost (2009) reported that children will get approximately 200–300 more steps in a 20-minute recess than students who do not have an organized active recess.

Unfortunately, some school districts do not require schools to have any recess during the day. According to Trost (2009) children that are obese, live in cities, reside in the southeast United States, or attend schools from lower-income families or schools that have a high percentage of American Indian or Alaska Native, Asian or Pacific Islander, non-Hispanic Black and/or Hispanic students are not as likely to have recess (p. 6).

In addition to having recess the timing of when the recess occurs is important.

Moving Matters (2013) stated that Minneapolis public schools have found benefits of active recess before lunch as opposed to being held after lunch. They have

found that students are more relaxed and focused on eating rather than the playground, cafeteria atmosphere improved, less supervision was needed in the cafeteria due to improved student behavior, and increased consumption of healthier food items such as fruits, vegetables, and milk. (p. 16)

Minneapolis Public School Principal Ryan Gibbs feels that the organized playtime during recess provided time for students to get rid of built up energy. He says students were able to focus and their overall behavior was better in the classroom and on the playground (Moving Matters, 2013, p. 3)

Other schools are also focusing on the benefits of healthy snack. In the fall of 2012, Chicago public schools passed a Local School Wellness Policy and a Healthy Snack and Beverage Policy (Davis, 2012). In March of 2014, Falconer Elementary School in Chicago held their very first “taste tests” (Knoblock, 2014, ¶ 2). As students went to recess, they were given the opportunity to stop and taste healthy foods such as sugar snap peas, peppers, and carrots. Each student completed a survey about the vegetables they had tried. According to the student surveys and from what teachers observed, the students at Falconer Elementary enjoyed the taste test and looked forward to these foods’ being added to their school lunches. They also looked forward to the next taste test (¶ 2). While physical activity is helpful to all students, students with learning differences may experience additional benefits that are discussed in the next section.

Physical Activity and Learning

Several authors have noted (Knobbe 2010; Krakow 2011; Swartout et al., 2013) how important for every child to get the right amount of daily physical activity. Frost et al. (2007) asserted that play, learning, and children’s overall development are all

interconnected. The authors stated, “researchers have discovered that play is related to greater creativity and imagination and even to higher reading levels and IQ scores. There are billions of developing neurons in children’s brains” (Frost et al., 2007, p. 1).

While structured fitness is important for children, so is free play. Frost et al. (2007) examined using heart rate monitors to compare children’s heart rates during physical education and free play. The study found that, on average, children were more active during free play than in gym class. During free play, the heart rates on average were 150 beats per minute; during gym class, they were 132 (Frost et al., 2007). Schools might be the only place where some children have the opportunity for free play on playground equipment because of where they live, access to parks and equipment, and the amount of time they have after school. Something as simple as climbing on playground equipment can be beneficial for a child’s cognitive development. It strengthens memory, problem solving, and imagery/visualization. Climbing also strengthens perceptual motor skills and motor fitness skills (Frost et al., 2007). Recent studies have stated that movement can be an effective cognitive strategy to strengthen learning, improve memory and retrieval, and enhance motivation and morale (Jensen, 2005).

Eric Jensen the author of *Teaching with the Brain in Mind* (2005) describes how the area of the brain most associated with motor control is the cerebellum. It's located in the back of the brain, just under the occipital lobe, and is about the size of a small fist. The cerebellum takes up just one-tenth of the brain by volume, but it contains *nearly half* of all its neurons. This structure, densely packed with neurons, may be the most complex part of the brain. In fact, it has some 40 million nerve fibers—40 times more

than even the highly complex optical tract. Those fibers feed information from the cortex to the cerebellum, and they feed data back to the cortex. In fact, Jensen (2005) describes how most of the neural circuits from the cerebellum are “outbound,” influencing the rest of the brain. Peter Strick (as cited by Jensen, 2005) at the Veteran Affairs Medical Center of Syracuse, New York, has documented another link. His staff has traced a pathway from the cerebellum back to parts of the brain involved in memory, attention, and spatial perception. Amazingly, the part of the brain that processes movement is the same part of the brain that processes learning (Jensen, 2005).

Jensen (2005) notes how everyday common playground activities increase impulses between the cerebellum visual systems and the sensory cortex. He continues that not only does movement increase cognitive function, movement increases oxygen to the brain, which in turn increases blood flow to the brain. Oxygen and blood flow work together to enhance brain function (Jensen, 2005). After conducting a study on sedentary versus active rats, findings showed there was an increase of heart and brain chemicals in the active rats. Jensen states (2005),

Evidence from animal studies indicates that voluntary exercise influences gene expression to improve learning and memory. This improved pattern of gene expression enhances many factors that support the encoding and transfer of data, synaptic structure, and the activity and plasticity of neurons. All of these processes facilitate learning. (¶ 11)

As significant as physical activity is to aide in heart and lungs, Jensen (2005) describes how it also provides fuel to significant areas that increase brain function.

According to Jensen (2005) more than 50% of high school students in the United States are not active on a day-to-day base. This is unfortunate given that how Jensen (2005) describes how physical activity supports brain functioning as well as physical health and how movement can help increase social skills. The positive outcomes of being active reported by Jensen (2005) can also promote increased academic performance and overall better attitude towards education. Interestingly, it is not a surprise that movement and learning are strongly connected, yet Jensen (2005) notes how many professional educators push aside the correlation of the two past second grade.

Overall, Jensen (2005) explains that both children and adults sit too much and for hundreds and thousands of years the human body was built to do more than just sit. He continues that the human body was designed to run, walk, lean, bend, twist, and sleep. Lack of movement, Jensen (2003) states, negatively affects the brain development and it contributes to poor body alignment, eyesight, and fatigue. The strain of excessive sitting causes spinal damage. Jensen (2003) states, “The pressure on the spinal discs is 30% greater when sitting than when standing” (p. 2). Another issue associated with sitting for long periods of time noted by Jensen (2003) is how it is contributing to boredom, inability to concentrate, and an overall lack of interest and motivation. To adapt for slowly progressing vision children tend to strain by leaning and rounding their backs to aide in better vision (Jensen, 2003). If one has to sit for long periods of time Jensen (2003) has a recommendation. Jensen (2003) describes how stretching alone improves circulation which aides in more oxygen to the brain including physical stimulation. He also recommends that physically moving and relocating to a different area or seat in the classroom promotes better learning.

As previously stated the human body is made to move. As we know physical activity promotes overall health. However, the significance of physical activity plays an integral role in brain development and growth (Blaydes & Mitchell, 2012). Including but not limited to strengthening the following areas of the brain processes such as, improved mental performance, improved on the following areas of learning, attention, self-esteem, cooperation, sleep, alertness, focus, reading, and comprehension (Blaydes & Mitchell, 2012). Physical activity decreases the following, distraction, test anxiety, behavior problems, and mood and balances (Blaydes & Mitchell, 2012).

While both gym and free play are important for all children those with attention deficit hyperactivity disorder (ADHD) according to Mulrine, Prater, and Jenkins (2008) may gain other benefits. For example these authors describe how students with ADHD need exercise to help them concentrate, and provide them with the opportunity to release their impulsive energy. These authors suggest that for students with ADHD an active classroom, specialized games at recess, and movement throughout the day will help to reduce poor classroom behaviors and social problems while increasing academic performance. Mulrine et al. (2008) also note how children with ADHD are at risk for movement difficulties, poor levels of physical fitness, and developmental coordination disorders and that appropriate physical activity can lead to gains in these areas. Mulrine et al. (2008) explain the relationship between physical activity and brain is because the brain requires oxygen to function properly. Physical activity increases blood flow, which then increases the amount of oxygen sent to the brain. The increase in oxygen is a vital piece of the learning process (Mulrine et al., 2008). Given that students spend

significant time in schools it is important to have curriculum available that support districts in teaching students life long physical activity and healthy nutritional habits.

Curriculum Supporting Integration of Physical Activity and Healthy Nutritional Habits

Research done by Bridging the Gap states that adding activity breaks throughout the day can help students focus and increases their overall level of fitness (Physical Activity, 2012). The study showed that students as well as teachers benefit from activity breaks. Activity breaks can be done as a whole school or in individual classrooms and could include things such as a lunch time running club, stretch breaks, walking outside, and yoga. Their study found that by adding activity breaks into the school day, physical activity increased among students and did not cause any scheduling challenges for principals or teachers (Physical Activity, 2012). Another program is Brain Gym International program (Brain Gym International, 2015).

According to the Brain Gym International website (2015) the program was developed in 1987 and is currently used in over 87 countries. Hyatt (2007) describes the goal of Brain Gym as to use active movement to facilitate whole brain learning. The program's theory, according to Hyatt (2007), is that learning is blocked when different parts of the brain do not work together. The author goes on to say that Brain Gym interventions reeducate the brain by using simple movements to get the mind and body working together for effective learning.

The reason that the brain may not be working together, according to Hyatt (2007), is that children need to develop specific motor skills during different developmental stages. For example, they need to learn to crawl before they learn to walk to ensure

proper neurological development (Hyatt, 2007). If any of these motor skills are skipped, it can lead to future difficulties with how their brains function. Brain Gym provides exercises that reprogram a child's brain and fill in the developmental gaps. The program's goals are to build awareness regarding the value of movement in daily life, promote play and the joy of learning, emphasize the ability to notice and respond to movement-based needs, and inspire an appreciation of music, physical education, and fine arts (Brain Gym International, 2011). A different program that can be implemented by schools is Jammin' Minute (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, 2012).

Jammin' Minute (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, 2012) is a free program being implemented by schools across the country. Teachers do not need to have any formal training to run the program, and it can be done anywhere and at any time throughout the school day. According to the Robert Wood Johnson Foundation (2012), incorporating one-minute bursts of exercise throughout the day helps students refocus their attention and get them started on a path toward a healthier lifestyle (p. 3). The five simple exercises that raise heart rates are done for 10 seconds or 10 repetitions, and the entire workout lasts for 1 minute. When the Jammin' Minute has been completed, there are a few breathing exercises to help students refocus. River Terrace Elementary School in Washington, DC, has seen positive effects from the implementation of Jammin' Minutes in their school with a rise in academics as well as attendance. For example, prior to the start of Jammin' Minutes their attendance rate was at 80 percent and one year of implementing the program their attendance rate increased to

97–98 percent (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, 2012, p. 4). The context of the River Terrace Elementary School is described next.

At River Terrace Elementary, there is a Head Start program and K–5, with 160 African American students, most of whom qualify for a free or reduced lunch (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, 2012). Most of the students only get 50 minutes of physical education a week. The school can only afford one part-time physical education teacher. As reported by Robert Wood Johnson Foundation Center to Prevent Childhood Obesity (2012) Principal Shannon Foster and the school nurse at River Terrace were both alarmed by the number of overweight children at their school who were diagnosed with diabetes and other diseases that are caused by poor health and nutrition. With help from the Alliance for a Healthier Generation’s Healthy Schools Program and the American Heart Association, the officials at River Terrace were able to start moving their school in the right direction.

Parents, teachers, Principal Foster, the nurse, the cafeteria manager, and students worked hard to improve the nutrition and fitness level of their staff and students. It was during this time that the school started to implement Jammin’ Minutes (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, 2012). Their goal with Jammin’ Minutes was to have all students do one minute of physical activity at certain points throughout the day that could be tied with academics. The school nurse led the Jammin’ Minutes and worked hard to adapt the movements to meet the needs of the students. Once the program was implemented the expectation at River Terrace was that everyone participated including visitors, the principal, teachers, support staff, or students.

In the following quote Principal Foster described how her students look forward to the daily Jammin' Minutes session.

Parents are one thing that we're really focused on because regardless of what we do at school, ultimately the decisions parents make are going to create the biggest impact. . . . It has been important for kids and parents to see the principal is serious about health and to make sure adults understand how children can benefit from these programs. (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, pp. 2–3)

Believing that parents can have a large impact from the beginning River Terrace wanted to get families more involved and active. To foster family involvement River Terrace started programs such as a family walking challenge, cooking classes, and the Stepping Tigers Club, which encourages families to walk together for 30–45 minutes after school and to keep a daily fitness log. Another curriculum to support physical activity is the Physical Activity Across Curriculum (PAAC) (Donnely et al., 2009)

Donnely et al. (2009) describes PAAC as a three-year, randomized, controlled trial of second- and third-graders from 24 schools. As part of PAAC classroom teachers had to provide their students 90 minutes a week of moderate-to-vigorous physical activity. The PAAC approach was created to decrease the amount of sedentary learning and increase the amount of academic instruction through movement. Donnely et al. (2009) reported how teachers in this PAAC trial integrated 10 minutes of physical activity into their language arts, math, science, or history lessons twice a day. Another program to decrease sedentary learning is TAKE 10! (ISIL Research Foundation, 2011).

According to their website TAKE 10! (ISIL Research Foundation, 2011) was used in more than 55,000 U.S. elementary school classrooms. The developers of TAKE 10! describe it as a cost effective, fun, innovative way for teachers to help students reach their daily physical activity requirements while also meeting the state academic requirements (ISIL Research Foundation, 2011). This program also helps to instill the importance of physical activity and teaches healthy behaviors. TAKE 10! (ISIL Research Foundation, 2011) provides each grade level with a kit that has math, language arts, science, social studies, and general health activities. Teachers can integrate TAKE 10! (ISIL Research Foundation, 2011) activities from these kits into their lessons. The Minnesota Learning Resource Center and A Chance to Grow, Inc., developed a curriculum called the Stimulating Maturity through Accelerated Readiness Training (*S.M.A.R.T Curriculum Guide*, 2005).

S.M.A.R.T. (2005) is “a multi-sensory approach to learning, designed to develop and enhance the physiological and neurological readiness skills students need to succeed in school” (2005, p. i). Within this curriculum, students develop large and fine motor skills, hand-eye coordination, and visual perception to help them advance in the classroom. To evaluate S.M.A.R.T. a Chance to Grow looked at 412 Minnesota kindergartners from 18 classrooms using the Metropolitan Readiness Test 6, Level 2.

The results were positive according to results published by A Chance to Grow (2014). The results indicated the following.

Two out of three scored above the national mean for reading readiness. Nine percent scored in the lowest quartile in reading readiness, versus the expected twenty-five percent. Seventy-two percent scored above the national mean, versus

the expected fifty percent. Ninety-one percent scored in the average range or superior and thirty-one percent scored at the superior level. (¶ 2)

A newer study by A Chance to Grow (2014) also reports the same type of positive results after implement the S.M.A.R.T program. In a different study 403 first-graders from 21 classrooms who were given the word from *recognition*, the Slosson Oral Reading Test – R3. Again the results were positive as described in the following quote.

S.M.A.R.T students scored at the 2.5 reading level versus the expected grade level 2.0 at the end of first grade. In S.M.A.R.T schools across the state, first graders showed forty-two percent faster oral reading rate on Curriculum Based Measures with twenty-seven words per minute. In math they showed ninety percent faster calculation and nine percent more accuracy. (A Chance To Grow, 2014, ¶ 3-4)

A support of the S.M.A.R. T. program is Lori Bouza, an early childhood principal and federal programs coordinator at Wagner Early Learning Center in Wagner, South Dakota. She posted a testimonial in the fall of 2008 on the Minnesota Learning Resource Center and the Chance to Grow website about her experience using S.M.A.R.T. at their school:

We have implemented the program into the daily routine in the Wagner Early Learning Center. Through the use of the fine motor exercises and eye training activities, all students, pre-k and kindergarten, increased their agility in using writing utensils. We have noticed students who are more able to sit in class for longer periods of time. (A Chance to Grow, 2014, Testimonials, Fall 2008, ¶ 3)

Current research supports the effectiveness of the S.M.A.R. T. program and next is a description of some S.M.A.R.T activities.

Examples of S.M.A.R.T activities include use of the balance beams, rebounders/trampolines, overhead ladder, spinning, and auditory activities. Balance beams are used to help with balance and body awareness. A Chance to Grow (2014) describes how body awareness helps children sit still and remain seated in their chairs. This skill also leads to understanding one's own left and right and, in turn, having the ability to read from left to right. Children who have problems with body awareness may fall out of chairs; have a short attention span or reverse letters or words. ¶3

In addition to balance beams the S.M.A.R.T programs includes the use of rebounders and trampolines.

Rebounders and trampolines are use to help to develop a child's muscles, joints, ligaments, bones, and tendons. A Chance to Grow (2014) states, a matured proprioceptive system is necessary for a child to perform in the classroom. This skill teaches the child's body that it needs muscle tension to sit in a chair properly and grade muscle movement appropriately. Children who have problems with proprioception may sit in a chair with poor posture and may respond to touch with too much or too little force. ¶ 5)

The overhead ladder or monkey bars are another element of the S.M.A.R.T. program.

The overhead ladder or monkey bars helps both eyes learn to work together to get across the monkey bars. A Chance to Grow (2014) states, eye teaming is an extremely important skill for reading. When reading, the eyes must also work as a team to fuse the image seen by each eye or the child will see the text as double. Children who have problems with eye teaming may fatigue

easily, show a decline in comprehension when reading and even avoid academics entirely. (§ 7)

Additionally, spinning like a helicopter also helps a child with body awareness.

A Chance to Grow (2014) states that when a child is spinning, the fluid in the inner ear is moving and sending information about where the child's body is in space. At the same time it is stimulating the same part of the brain that popular impulse control medications stimulate. This produces a calmer, more focused child. (§ 8)

Like the balance beam, spinning will help a child learn how to read left to right and sit for longer periods of time in a chair. S.M.A.R.T also uses auditory activities to prepare a child with the skills they can use when learning to read. In the following quote A Chance to Grow (2014) describes why auditory activities are important.

The ability to recognize, discriminate and blend sounds and then words is crucial to reading. The child must have the ability to recognize sounds in order to later match sounds and blend sounds together in order to begin to learn to read.

Children who have problems with these auditory skills cannot follow directions or fail to complete their work, impulsively blurt out answers to questions and avoid or dislike academics entirely. (§ 9)

All of the different equipment utilized throughout the S.M.A.R.T program is included to help students improved eye-hand coordination, visual acuity, fine motor skills, spatial relations, and primitive reflexes. All of these skills work together to help a child learn to read, write, sit in a chair, and hold a pencil (A Chance to Grow, 2014). Another a no-cost

school wellness program is Game On! The Ultimate Wellness Challenge (Healthy Kids, 2014).

Game On! The Ultimate Wellness Challenge is a program (Healthy Kids, 2014) that challenges elementary schools, teachers, students, and families to make healthy food choices in and out of school and incorporate daily physical activity into the curriculum. The program offers 45 challenges that encourage children, teachers, and parents to eat better and move more. According to Healthy kids (2014), 28th Street Elementary credits Game On!, The Ultimate Wellness Challenge as well as other resources for changing the health and fitness of their students.

Before 28th Street Elementary started their initiative to improve the health and fitness of their students and staff, it was not an exemplary healthy or fit school. Healthy kids (2014) describes how there were no guidelines as to what 28th Street Elementary students could bring for a snack or home lunch. Students would often bring chips, pop, candy, and other foods with no nutritional value. Like at many schools, parents would bring cake, cupcakes, and cookies to celebrate holidays and birthdays at school. School administration at 28th Street Elementary had to cut physical education classes to once a week for some classes and had no active recess in place. In addition Action for Healthy Kids (2014) reported that 28th Street students were not encouraged to get up and move during this time. This changed after the school received a grant for the 2012–2013 school year from the Wal-Mart Foundation.

The grant allowed the staff and teachers at 28th Street Elementary to implement a wellness program. They developed school policies that required 60 minutes of physical activity a day as well as healthy snacks and lunches at school (Action for Healthy Kids,

2014). One of the Game On! challenges they implemented was a taste test of fruits, vegetables, and other healthy food choices. Most of the healthy food choices introduced at 28th Street Elementary were new to most of their students. As a result of the wellness program students at 28th Street Elementary were making healthy choices at snack and lunch. 28th Street Elementary also implemented a program called Fuel Up to Play 60 and Move to Learn.

These programs provided “brain breaks” in the classroom and organized games at recess. When children would visit the nurse’s office with the common complaint that their head hurt or they did not feel good, Traci Easterling, the school nurse at 28th Street Elementary, would recommend the student exercise before heading back to their classroom (Action for Healthy Kids, 2014). Easterling stated,

Within a few months faculty and students were already more aware of the choices they were making. All of the school’s teachers had stopped using candy and other nutrient-poor foods for student rewards and eighty-five percent were adding physical activity to the school day. Not only were students trying new good-for-you foods, twenty-one out of twenty-two students in one second grade class now ordered salads for lunch whenever they were available. They were also learning what those foods do to make a body healthy. . . . We’ve succeeded in spreading the “health bug” and it’s exciting to see everyone working together to make healthy eating and physical activity part of our school culture. Students and their families, as well as faculty members, are learning healthy habits that will carry them throughout their lifetime. (Action for Healthy Kids, 2014, ¶ 6)

Another school that implemented this program was at Northport Elementary School in Tuscaloosa, Alabama (Action for Healthy Kids, 2014).

Jesse Sartain is a teacher at Northport Elementary School in Tuscaloosa, Alabama (Action for Healthy Kids, 2014). She incorporated “brain breaks” throughout the day to keep her students engaged and ready to learn. Brain breaks use physical activity at least once every hour and include activities like hopping on one foot, toe touches, jumping jacks, and other movements while counting. With help from a grant from Action for Healthy Kids, Sartain not only used “brain breaks” in her own classroom but was able to incorporate them throughout the entire school (Action for Healthy Kids, 2014). Sartain did not stop with brain breaks.

She also “organized wellness assemblies, taste tests of healthy snacks, lessons about healthy eating, fun activities to get kids moving, healthy fundraisers and bulletin boards with healthy messages, host monthly family fitness nights” (§ 8). Sartain stated,

The Action for Healthy Kids grant has helped to promote an overall positive attitude about health and wellness among both teachers and students, teachers are engaging students in physical activities throughout the day, as well as students talking with teachers about healthy choices. The impact on our school can be seen daily. (§ 11)

After receiving the grant, Northport had its teachers trained on how to use “brain breaks” in their classroom.

Carla Jones, a kindergarten teacher at Northport, stated, “The brain breaks have helped my children be more attentive during whole group instruction. Now their minds are clear, wiggles are out, and they are ready to learn” (§ 6). She stated that Lucy Sellers,

the principal at Northport Elementary, “ensures that brain breaks remain a priority for both the school and teachers, Sellers made the initiative part of the school improvement plan as well as teacher observations and evaluations” (Action for Healthy Kids, 2014). While not a curriculum schools have been experimenting with introducing children to yoga practices.

According to Smith (2013) yoga enhances concentration, which helps with children’s behavior and performance in school. Smith (2013) also notes how yoga can help build learner confidence, create positive body awareness, introduce relaxation and bring about stress relief, and build social interactions, strength, and flexibility. In addition, Smith (2013) notes how stories and songs can be incorporated into the yoga movements, helping to make yoga fun for children.

Summary

The goal of a K-12 teacher today is to teach students not only academics but also the importance of a healthy lifestyle and how to make healthy choices. Childhood obesity has become a serious epidemic in the United States. Families today are pulled in several different directions, and a healthy lifestyle is not always on the list of top priorities. Video games and television have taken over the lives of children today and have caused them to become much more sedentary than children five to ten years ago. Incorporating physical activity into the classroom not only helps fight the battle against childhood obesity, it also leads to an increase in academic achievement, a more engaged population, and a significantly improved classroom behavior model.

This literature review has discussed the importance of physical activity in the classroom. There have been many improvements and programs added to schools to help

fight childhood obesity and improve test scores. Most of the programs discussed in this literature review provide physical activity during breaks or transition time. There are very few that actually incorporate movement into academics. Although great strides have been made to fight childhood obesity and improve test scores, more needs to be done. The next chapter will describe how to use Understanding by Design (McTighe & Wiggins, 2005) to create a kindergarten curriculum that integrates movement into academic lessons. The curriculum is designed to meet the academic state standards for kindergarten students. Each lesson will have an element of physical activity that not only keeps the students engaged and moving but also strives toward academic success.

CHAPTER THREE

Research Method

The Question

While there have been major steps taken to add movement and physical activity into the school day, there are very few curricula that connect those elements to the state standards for teachers to meet. Chapter Three provides information about the study's main question; how I can use understanding by design (McTighe & Wiggins, 2005) as a curriculum development model to create a kindergarten curriculum that integrates physical activity supporting the academic standards set by the school district in which I work. For my capstone project I submitted a short form application to the Hamline School of Education Human Subject Committee. The committee approved my project in the summer of 2014.

The rest of this chapter will describe the steps that were taken to develop the curriculum and the theory behind it. It also provides demographic information about the school setting where the curriculum was implemented and limitations of this curriculum development process.

Understanding by Design

Most students today lead unhealthy lifestyles that include sedentary activities and fast food. They are not getting enough physical activity throughout the day. The curriculum I developed integrated movement and exercise to provide my kindergarten students with physical activity while engaging them and tying physical wellness to the academic state standards. While physical activity could be incorporated into all academic

areas, this curriculum will focus on kindergarten math and reading standards. The goal behind this curriculum is to provide my students with the recommended 60-minutes per day of physical activity necessary for a healthy lifestyle while obtaining the knowledge they need to be proficient at their grade level. My reason for developing this curriculum was because of the number of children I encounter in my classroom who are obese or overweight.

My curriculum was based on the following resources; *Understanding by Design UbD*, by Jay McTighe and Grant Wiggins (2005), *Teaching Young Children*, by Dianne Miller Nielsen (2006), and *Lively Learning: Using the Arts to Teach the K-8 Curriculum* by Linda Crawford (2004). McTighe and Wiggins (2005) described a backward approach to writing curriculum to develop students' understanding of curriculum, put meaning to their learning, and transfer what they learn to other content areas. The three stages in the UbD process design include identifying desired results, determining acceptable evidence, and developing the learning plan. Stage One requires that I identify the standards to be addressed and what my students should learn. Stage Two requires that I identify evidence and assessments to determine if my students have attained the desired understandings, and Stage Three is where I identify and develop the activities, experiences, and lessons that will lead to the desired learning outcomes.

I chose to use the UbD model (2005) to develop my curriculum because my school had used it as a book study for our professional learning community. I liked the backwards approach on writing curriculum and focusing on identifying the desired results, determining acceptable evidence, and developing the learning plan. After

discussing this design in our book study for several weeks I decided this would be a great resource to use when developing my curriculum.

Movement-Based Curriculum – The Theory

The theory behind this curriculum is that the brain is a “system of systems” and is activated during physical activity (Crawford, 2004). According to Crawford (2004) physical activity not only helps students stay fit and healthy, it awakens the brain and helps them to think, learn, and retain important information. In my professional experience many teachers will agree that kids are active in class and most of them do not need much encouragement to get out of their seats and move.

Crawford (2004) also describes the following four different ways for movement and physical activity to be incorporated into classrooms.

- One, to teach content
- Two, to practice social skills
- Three, to stimulate energy, and
- Four, to build community.

The previous chapters examined ways to stimulate energy and build community. The curriculum presented in this chapter will teach reading and math content while using movement and physical activity. My goals for the curriculum are that it be engaging and motivate students to learn and that teachers will enjoy teaching this curriculum.

My Movement Based Curriculum

The curriculum that was integrated focused on the math and reading standards because math and reading are the subject areas that are tested and monitored for growth in the district where I work. The district wants our students to have a strong foundation in

math and reading to ensure they are ready for state testing that begins in the third grade. Kindergarten had power standards that each of our students should have mastered by the end of the school year. As a kindergarten teacher it was my job to touch on these standards at some point throughout the day. Sometimes we would spend five minutes a day on one standard and other days fifteen.

The four reading power standards that were used in this curriculum include:

- Students are able to read sight words.
- Students are able to name and show all lowercase and uppercase letters.
- Students can say and hear words that rhyme.
- Students can identify the main topic and retell key details of a text with prompting and support.

The curriculum also addressed the following five math power standards:

- Students can recognize and sort basic two- and three-dimensional shapes; use them to model real-world objects.
- Students can represent quantities using whole numbers and understand relationships among whole numbers.
- Students can add and subtract whole numbers up to six in real-world and mathematical problems.
- Students can understand the meaning of terms used to describe location and placement of objects.
- Students can compare and order objects according to location and measurable attributes.

Once the standards to be addressed by my movement-based curriculum were identified I selected different methods to measure growth of my students on the reading and math standards.

First, I used an assessment book that was used across the whole grade level. The assessment book was divided into three sections because our district had trimesters. Each section had assessments for each power standard that were focused on for that trimester. I also used common formative assessments to see which standards my students needed to spend more time on and which standards we could move on from or add on to. My students also took NWEA tests on the computer once per trimester. These assessments are personalized and the test adapts to the academic level of each student. This assessment provided me with more information as to where my students were and what areas we needed to focus on. Lastly, I used my own observation and what I knew about each student to help me determine what lessons and activities to do each day.

I used the reading and math curriculum that our district had chosen and then I would incorporate movement activities that I found on the Internet to help reinforce the skill that I had introduced from the curriculum. These activities will be described in Chapter Four. There were also websites that I used in the classroom that had various songs and exercises that could I used for brain breaks throughout the day. To help other teachers determine if the movement-based curriculum I developed might be appropriate for their students the next section described the context of my classroom.

Classroom Context

My classroom consisted of twenty-one students; there were ten girls and eleven boys from various socio economic and ethnic backgrounds. The students' academic

levels ranged from below grade level, at grade level and exceeding grade level. I also had three students that were on individual education plans. I also had a few high-energy students that needed a lot of my attention. This was typical of all the classrooms throughout the school. The school I taught at was a Health and Arts Magnet school. The school had a focus on health and fitness so my students were not only encouraged in my classroom to be healthy and active they were encouraged to do these throughout the whole school.

Limitations of the Curriculum Development Design Process

Some of the limitations I faced while implementing this curriculum were that each student needed a different amount of movement and there was no way to make an individual design. Some activities you do will work really well with one class and may not work as well with another. While my colleagues added movement into their classroom they had their own way of doing it. I had no one to truly collaborate with while designing my curriculum. I would do different things than other teachers but we would often discuss the activities we did and what worked, what did not work, and what we would do different. Another limitation I faced was not having enough time to reflect in a journal what worked and what did not work. I was able to make mental notes but was never able to get my thoughts down on paper.

Conclusion

Chapter Three talked about the model I used to design curriculum, the theory behind it, the classroom context, and the limitations I faced. Chapter Four will address the power standards and what movement-based activities were added to meet each standard.

CHAPTER FOUR

Movement-Based Curriculum for Reading and Math Power Standards

Chapter Overview

My capstone question is how I can use understanding by design (McTighe & Wiggins, 2005) as a curriculum development model to create a kindergarten curriculum that integrates physical activity supporting the academic standards set by the school district in which I work. This movement-based curriculum was created and implemented throughout all academic areas in the 2013-2014 academic school year. In 2013-2014 my class consisted of 22 students from various ethnic and socioeconomic statuses.

This chapter will describe the general structure of the curriculum and how the curriculum was implemented over a course of two weeks. I have included specific lesson plans for two weeks of movement activities. The curriculum is fairly routine so providing only two weeks of lesson plans should give a clear understanding of the nature of the curriculum and how it was implemented. My curriculum was aligned to correspond with kindergarten standards in the state where the capstone took place. I developed new activities as well as incorporating lessons from the following websites:

- Dr. Jean's music and movement activities (Dr. Jean and Friends LLC, 2014)
- Active Academics (Active Academics, 2005-2014)
- S.M.A.R.T activities (S. M. A. R. T. Curriculum Guide, 2005).

I have also included some other activities in this chapter that my school and grade level did which were supportive of my movement-based curriculum but independent of it.

Lastly, I listed the math and reading power standards and some general activities that I aligned with them.

General Structure of My Movement-Based Curriculum

Our day started everyday with a morning meeting (Center for Responsive Schools, 2015). During our morning meeting we start with a greeting and do a quick share. I then went over the calendar and our daily schedule with my students. According to the Center for Responsive Schools (2015) the goal of morning meeting is to ensure that each student feels like they belong to our classroom community. At the end of the meeting we played a game, did a dance video or exercise so that everyone was ready to focus on the day. After morning meeting they started their day with a movement video and song that also involved letter sounds, letter identification, number identification or counting. Later on in the year different movement videos and songs can be added as these skills start to develop.

Every math lesson had direct instruction as well as a movement activity that focuses on the lesson objectives. Math was broken up with snack time. Parents were asked to send a healthy snack with their child so they started to develop healthy eating habits at a young age. Before snack is when I had my students do active movement math videos to reinforce or introduce the power standards. After snack we met back on the carpet for whole group direct instruction where I taught a lesson from our Everyday Math Curriculum (McGraw-Hill Education, 2015). At the end of every lesson I had a hands-on activity before I had my students return to their tables for seatwork.

After specialist my students came back to the room for reading. I started each reading lesson with a movement activity that focused on a reading power standard. Then

we moved to their carpet spots for whole group direct instruction. The reading curriculum that I followed had a story and skills that I was required to teach each week. I taught from the curriculum but also added my own movement activities and stories that reinforced the skills that I introduced that week.

At 1:30 p.m. after lunch and recess I took my class to the S.M.A.R.T. room (A Chance To Grow, 2014). The S.M.A.R.T room was located upstairs and had stations that were set up and left for all kindergarten classrooms to use. The room looked like an indoor gym with equipment in it. During this time my students worked on activities that helped them to develop eye-hand coordination, visual acuity, fine motor skills, spatial relations, and primitive reflexes while working on the math and reading power standards. The S.M.A.R.T. room activities were designed to help them academically as well as physically. The S.M.A.R.T room had different stations that the children would rotate through. Each station had different active movements to do while working on reading sight words, letters, letter sounds, etc.

Fit Kinders is a health unit that I developed and includes age appropriate activities and topics that teach my students how to make healthy choices at a young age. When using the Fit Kinders curriculum my students discuss topics such as nutrition, exercise, healthy eating habits, and dental health. There were various projects sent home that required parental involvement, as a teacher it was important to me for the families of my students to be involved with what we were doing in school. My desire to involve my students families is because of my belief that family involvement can support carry over of the Fit Kids curriculum objectives to my students home environment. Since the

completion of this project I am teaching third grade and have adapted the Fit Kids curriculum to include new age appropriate for third grade students.

In addition to teaching healthy eating habits, I am a strong believer that kindergarten children need free playtime. My movement-based curriculum ended each day by providing my students with free choice time. Depending on the weather we sometimes went outside and played on the playground or they were able to play in the classroom. I had games, art activities, kitchen set, etc. for them to use during this time. While this was the general structure of my movement-based curriculum I also included other movement activities that are discussed in the next section.

Other Movement Activities Not Included in Curriculum

Throughout the school year there were other activities, not part of my movement-based curriculum, that were incorporated into the day that provided more opportunities for active movement. For example, the first 6 weeks of 2013/14 school year, my students did yoga in the media center. They each got their own yoga mat and were taught techniques to calm their bodies down and to find inner peace. They used puppets that took them through stories and songs that taught them how to do the movements to find their calm.

In 2013/14 the month of March was “health and fitness” month at my school. During this time there was a healthy snack contest. Each class kept track of how many healthy snacks each child ate during snack and lunchtime. Each class recorded their healthy snacks on their healthy snack chart on their door so that all the children could see which class was in the lead and how much more they needed to eat. At the end of the month, a mascot from a professional sports team in the area where the research took

place, came to our school during gym to exercise with us. He showed us what athletes from the team did to exercise before games, which got the students really excited. There were stations set up with different exercises and when the mascot blew the whistle, the students did that exercise until he blew the whistle to stop and rotate. I was always participating and doing the exercises with my students.

In addition to the visit by the team mascot two forms were sent home with students during the March 2013 Health and Fitness month. Both forms were to be completed by the parents with their child. This required families to look in their cupboards to see what foods they had from each food group and then plan their meals for five days with something from each food group.

In addition to the March 2013 Health and Fitness month one day the whole school simultaneously exercised for 45 minutes. There were 25 stations that had exercises that they had to complete before a class could move on to the next station. It was a fun activity to do as a class or, as I called it, a “team.” We had to work together as a team whether they were doing push-ups or burpees. We counted each rep together, encouraged each other, and jogged to each station.

As a teacher my observation was that incorporating these various types of physical activities into the classroom proved to be beneficial to my students. Adding movement and exercise to math and reading lessons provided each student a chance to get up and move. Adding physical activity to each lesson helped my students work toward the goal of sixty minutes of physical activity a day. In addition I found that their math and reading scores went up significantly. When the school year was over, I felt confident about sending them onto first grade.

Even though I loved adding physical activity into my classroom, I sometimes found myself frustrated with it. While some of the boys needed to get up and move and release energy, they sometimes struggled with behaving appropriately during this time. Some days it became a hassle because I had to deal with behavioral problems and spent a lot of time redirecting the students. Instead of dancing and moving, they would push and run around the room. To maintain appropriate classroom management when incorporating physical activity added to the classroom I found it had to be structured and well planned.

As previously mentioned, students did yoga every Monday for 6 weeks at the start of the academic year. During the six weeks my students learned to control their bodies and recognize when they needed to find a calm place. It was fun to watch students participate while someone taught them these techniques. I was also able to participate in the yoga movements and stories with them. Again, I feel it is important to show my students that exercise is for not only children but adults too. The techniques they learned in yoga I sometimes incorporated into the classroom. For example, sometimes before Morning Meeting or if there was a moment when the whole class needed to find calm, they would do yoga and breathing exercises. Go Noodle (Health Teacher Inc., 2015) had a great video that was often used to help find our own levels of calm and quiet.

Out of everything my students did related to my movement-based curriculum, Fitness Month was a favorite. My students were so involved in bringing healthy snacks from home and eating fruits and vegetables at lunch so that they could beat the other classes. Unfortunately, my class did not win, and when they started to lose, some of them gave up. However, there were a few children who continued to make healthy choices

even after the competition was over. They would choose carrots and apples from the snack cart over crackers and goldfish. Even if it was just a few children who continued to make healthy choices, this should be considered a success because those children did not have an adult standing over them telling them to make a healthy choice. They went to the snack cart and made the healthy choices on their own.

As important as it is to teach children these healthy habits, it is just as important to teach adults. Sending home the meal planning paper and the “What’s in Your Cupboard” questionnaire provided each child an opportunity to get their parents involved and show them what they had been learning about healthy foods. We live in a busy, fast-paced world where families may need to be encouraged to take time to stop and evaluate what they are eating and what their children are eating on a day-to-day basis. The next section describes the math and reading power standards that formed the bases of my movement-based curriculum.

Math and Reading Power Standards

One of the math power standards that I used was, students could add and subtract whole numbers up to six in real-world and mathematical problems. To teach this standard I had each student work with a partner. They had to roll two dice, find the answer depending on if they were to add or subtract and then do that amount of jumping jacks, push-ups, sit-ups etc. The specific math standards are described in Table 1.

Table 1. Math Power Standard Included in Movement Based Curriculum

Math Power Standard	Movement Activity	Duration	Frequency
Students can recognize and sort basic two- and three-dimensional shapes; use them to model real-world objects	Shape Hunting Game	15 to 20 minutes	Once during shape unit
Students can represent quantities using whole numbers and understand relationships among whole numbers	Numbercise Have a sheet of paper with numbers and an exercise taped up around the playground, in the gym, or in the classroom. Students rotate to each station and complete the exercise; the number on the sheets tells them how many times they need to do each exercise.	15 to 20 minutes	Once a week or as often as teacher feels necessary
Students can add and subtract whole numbers up to six in real-world and mathematical problems	Work with a partner Roll two dice, find the sum and do that amount of jumping jacks, push- ups, etc.	15 minutes	Once a day or as often as teacher sees the need
Students can understand the meaning of terms used to describe location and placement of objects Students can compare and order objects according to location and measurable attributes	Students stand next to their desk doing a movement like hopping, twisting, turning, jumping, running in place, etc. Teacher calls out a shape. Students stop to draw the shape either in the air or on a white board. Students need to listen for the location of the shape. It will either be next to, beside, above, below, or under, another object.	15 minutes	Once a day or as often as teacher sees the need

In addition to math standards I also incorporated reading power standards in my movement-based curriculum. One of the reading power standards was that students could identify the main topic and retell key details of a text with prompting and support.

To teach this standard I used stories from curriculum or found a story that tied in with the unit that week. I incorporated movement activities that reinforced the skill I was teaching.

The specific reading standards are described in Table 2.

Table 2. Reading Power Standard Included in Movement Based Curriculum

Reading Power Standard	Movement Activity	Duration	Frequency
Students are able to read sight words	Videos, games, songs	15 minutes	Once a day or as often as teacher sees the need
Students are able to name and show all lowercase and uppercase letters	Interactive videos from Youtube or movement websites.	5-6 minutes	Daily until this standard has been mastered
Students can say and hear words that rhyme.	Active movement rhyming games	Time varies according to students' needs	Daily or a few times a week
Students can identify the main topic and retell key details of a text with prompting and support	Use story from curriculum or find a story that can tie in with the unit that week. Incorporate movement activities that reinforce the skill you are teaching.	10-15 minutes	Once during the main idea lesson, can incorporate with other

Table 3 represents what one-week of morning activities for my curriculum looked like. It starts with what the students did when they arrived at school.

Table 3: Morning Lesson Plan: Week One

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:15-8:30	Arrival...students arrive and read the morning board, which gives them directions for what to do in the morning. They turn in folders and lunch sticks, put bags and other belongings in their cubbies, and start morning work.				
8:30-8:50	Arrival Work Morning Meeting Jammin' Minute	Arrival Work Morning Meeting Alphardy	Arrival Work Morning Meeting Lettercise	Arrival Work Morning Meeting Jammin' Minute	Arrival Work Morning Meeting Go Noodle
8:50-9:05	<i>I Love Teaching Counting by 5's</i> (movement video)	<i>I Love Teaching Counting by 2's</i> (movement video)	<i>I Love Teaching Counting to 100</i> (movement video)	Numbercise (described in ch. 3)	Dice Jumping (described in ch. 3)
9:05-9:35	Healthy Snack	Healthy Snack	Healthy Snack	Healthy Snack	Healthy Snack
9:35-10:15	MATH Lesson: Everyday Math Lesson Outdoor Shape Hunt Seatwork	MATH Lesson: Everyday Math Lesson Geometric Space Jam Seatwork	MATH Lesson: Everyday Math Lesson Hokey Pokey With Shapes *students use shapes instead of body parts Seatwork	MATH Lesson: Everyday Math Lesson How Many Shapes Can We Make? *students make shapes with bodies Seatwork:	MATH Lesson: Everyday Math Lesson Shape Hunt Chant *students go outside and look for shapes as we walk and sing shape chant Seatwork
10:15-10:30	RESTROOM BREAK/ Brain Break-Go Noodle				
10:30-11:30	SPECIALS Music	SPECIALS PE	SPECIALS Art	SPECIALS Gym	SPECIALS Library
11:30-12:15	Sight Word Exercise READING Skill: Character, Setting, and Plot Story: The Alphabet Tale *students act out movements from story	Sight Word Exercise READING Skill: Ask and Answer Questions about Text Story: Brand New Kid *practice the soccer skills that main character used in story	Sight Word Exercise READING Skill: Sequence Story: Bop 'til You Drop *students put movements from story into sequence from the book.	Sight Word Exercise READING Skill: Character Traits Story: How to be a Cat *students do the actions that are described in the book.	Sight Word Exercise READING Skill: Sequence Story: Going on a Bear Hunt *students play song and do bear hunt actions

The one-week of afternoon activities are described in Table 4 that includes examples as to what kinds of movement activities we did and what part of the day I used them.

Table 4. Afternoon Lesson Plan: Week One

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
12:15-12:45	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
12:45-1:15	RECESS	RECESS	RECESS	RECESS	RECESS
1:15-1:30	Teacher Read Aloud/Rest:				
1:30-2:05	S.M.A.R.T Room	S.M.A.R.T Room	S.M.A.R.T Room	S.M.A.R.T Room	S.M.A.R.T Room
2:05-2:35	Fit4 Kinders warm-up, movement, cool down	Fit Kinders- warm-up, movement, cool down	Fit Kinders warm- up,movement, cool down	Fit Kinders warm-up, movement, cool down	Fit Kinders- warm-up, movement, cool down
2:35-3:05	Topic: Movement Free Choice/ playground	Topic: Movement Free Choice/ playground	Topic: Movement Free Choice/ playground	Topic: Movement Free Choice/ playground	Topic: Movement Free Choice/ playground
3:05-3:15	Mailbox and pack up	Mailbox and pack up	Mailbox and pack up	Mailbox and pack up	Mailbox and pack up
3:15-3:30	Dismissal	Dismissal	Dismissal	Dismissal	Dismissal

The next section describes my week two lesson plans.

LESSON PLANS Week Two – Kindergarten

Again week two followed the same routine as week one but the movement activities changed depending on what standard I was teaching that day. After following this same routine for two weeks my recommendation is then start incorporating your own curriculum to address the power standards in your classroom. Table 5 represents the week

two morning activities for my curriculum and starts with what the students did when they arrived at school.

Table 5. Morning Lesson Plan: Week Two

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:15-8:30	Arrival...students arrive and read the morning board, which gives them directions for what to do in the morning. They turn in folders and lunch sticks, put bags and other belongings in their cubbies, and start morning work.				
8:30-8:50	Arrival Work	Arrival Work	Arrival Work	Arrival Work	Arrival Work
8:50-9:05	Morning Meeting Jammin' Minute	Morning Meeting Alphardy	Morning Meeting Lettercise	Morning Meeting Jammin' Minute	Morning Meeting Go Noodle
9:05-9:35	<i>I Love Teaching</i> <i>Counting by 5's</i> (movement video)	<i>I Love Teaching</i> <i>Counting by 2's</i> (movement video)	<i>I Love Teaching</i> <i>Counting to 100</i> (movement video)	Numbercise (described in ch. 3)	Dice Jumping (described in ch. 3)
9:35-10:15	MATH Lesson: Everyday Math Lesson Seatwork	MATH Lesson: Everyday Math Lesson Seatwork	MATH Lesson: Everyday Math Lesson Seatwork	MATH Lesson: Everyday Math Lesson Seatwork	MATH Lesson: Everyday Math Lesson Seatwork
10:15-10:30	RESTROOM BREAK/ Brain Break-Go Noodle				
10:30-11:30	SPECIALS Music	SPECIALS PE	SPECIALS Art	SPECIALS Gym	SPECIALS Library
11:30-12:15	Fishing for Sight Words READING Skill: Main Idea and Detail Story: Stelluna Stelluna Tag	Rhyming Game: 1,2,3,4 READING Skill: Text with Understanding Story: There Was An Old Lady Who Was Not Afraid of Anything *students put movements with story	Rhyming Game: I Can READING Skill: Character, Setting, and Plot Story: Where The Wild Things Are *students make a list of "rumpus" activities and act out	Rhyming Game: I Woke Up in the Morning READING Skill: Character, Setting, and Plot Story: Silly Tail Book *students act out animals	Fishing for Sight Words READING Skill: Ask and Answer Questions Story: <i>The Busy Body Book: A Kid's Guide To Fitness</i> *Discuss movements & fitness. Do movements from book

The week two afternoon activities are described in Table 6 that includes examples as to what kinds of movement activities we did and what part of the day I used them.

Table 6. Afternoon Lesson Plan: Week Two

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
12:15-12:45	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
12:45-1:15	RECESS	RECESS	RECESS	RECESS	RECESS
1:15-1:30	Teacher Read Aloud/Rest:				
1:30-2:05	S.M.A.R.T Room				
2:05-2:35	Fit4kids-warm-up, movement, cool down Topic: Recharge				
2:35-3:05	Free Choice/playground				
3:05-3:15	Mailbox and pack up				
3:15-3:30	Dismissal	Dismissal	Dismissal	Dismissal	Dismissal

This chapter described the general structure of my movement-based curriculum and other movement based activities that were not included in my curriculum. I shared the math and reading power standards that I used in my curriculum and movement activities that I incorporated with those standards. In Chapter Five I will look at what I learned as a teacher, major learning for my students, and recommendations I have for the future.

CHAPTER FIVE

Creating a Movement-Based Curriculum: What I Learned

Chapter Overview

My capstone question is how I can use understanding by design (McTighe & Wiggins, 2005) as a curriculum development model to create a kindergarten curriculum that integrates physical activity supporting the academic standards set by the school district in which I work. This movement-based curriculum was created and implemented throughout all academic areas in the 2013-2014 academic school year. My class consisted of 22 students from various ethnic and socioeconomic statuses. This chapter will summarize key points from my review of the research literature, my major learnings from using the understanding by design (McTighe & Wiggins, 2005) to create the curriculum and what I learned as a result of implementing it in my classroom.

Activity and Healthy Eating Habits for K-12 Learners

My view of society is that today seems to be all about convenience and less about what is good for us. I am aware of how for some families eating at McDonald's is easier than eating at home and how some children play video games for hours instead of playing outside. As a teacher I see many of my students eating fruit snacks instead of fruit. All of these things are contributing to increases in obesity rate in the United States that can lead to a generally unhealthy society (Belluck, 2005).

So as a teacher I wonder that if parents do not have the time or resources to teach their children how to live a healthy lifestyle, maybe their children can teach them. If as teachers we provide children with the knowledge and tools to do this at school, they may go home and share what they have learned. This is important because according to

Belluck (2005) today's children are the first American generation whose life expectancy may be shorter than their parents' due to the dramatic rise in obesity.

There is a serious epidemic facing America's youth. One in three American children is overweight or obese, and this number has nearly tripled over the last three decades (Lanigan, 2011; Green, Riley, & Hargrove, 2012). Not only can obesity lead to type II diabetes, cardiovascular disorders, asthma, sleep disturbance, and joint and bone disorders, it can also lead to social rejection and low self-esteem (Lanigan, 2011; Green et al., 2012). The chances are also much higher for children who are obese to become overweight adults.

Green, et al. (2012) stated that one reason for the alarming rise of overweight or obese children is that they use significantly less energy throughout the day than their parents or grandparents did when they were their age. Children today spend a lot of time doing activities that do not require a lot of extra movement. The authors also noted that families are eating more fast and processed foods than they did a decade ago. More than 23 million American children are either obese or overweight, 23 percent of those children are living in poverty (Lanigan, 2011; Green et al., 2012). Child obesity also affects psychological health (Frost, Brown, Sutterby, & Thornton, 2007).

Frost, et al. (2007) stated that children who are obese or overweight are often victims of ridicule, torment, and prejudice from both children and adults. This can lead to depression, low self-esteem, negative self-image, and possible withdrawal from peers (Frost et al., 2007). It is hard to believe that a prejudice toward overweight or obese children can start as young as preschool, but Frost et al. (2007) describe how children view their peers who are overweight as lazy, sloppy, dirty, stupid, ugly, less likely to

have friends, less liked by parents, less likely to do well at school, less satisfied with their appearance, and more likely to be teased. The authors continue that the judgments placed on overweight or obese children do not just go away and obese children suffer into adolescence and adulthood.

According to the website for Let's Move! (2015), a program started by First Lady Michelle Obama to solve childhood obesity, nearly two in five Hispanic children between the ages 2–19 are overweight or obese. While childhood obesity is affecting children from all populations, it is growing the fastest among the Hispanic population. Let's Move! (2015) also reports that nearly 40% of African American children are overweight or obese, and 11 percent of whom are 2–5 years of age. The highest prevalence of childhood obesity among any group is that of African American adolescent girls between the ages 12–19 (2015).

Michelle Obama has worked hard to make sure schools are aware of what is happening to our young people. The school I was at when I began this capstone did a lot of things to ensure their students were active and healthy. They provided them with a healthy snack, provided a longer recess time that had organized games as well as time for free play, the hallway could also be used as a track, and they taped up exercises around the school that you could do when walking through the halls. It was not until I got to my current school, that is on Michelle Obama's list of Let's Get Active Schools (Let's Move!, 2015), that I saw so many great things being done to ensure that everyone from students, teachers, support staff, administrators and custodians were active and making healthy choices each day.

They revamped school lunches to ensure that students were getting the right

amount of fruits, vegetables and whole grains. I have never been one to eat school lunches even when I was a student. Once I began eating school lunch I lost twenty pounds and did not feel hungry all day long. It forced me to eat fruits, vegetables, and smaller portions. I would often ask my students what was for lunch and if it was good or not and there were very few lunches that they did not like. Not only did they revamp the lunches, they revamped the snack cart.

The snack cart is out in the mornings and students are able to get a morning snack. They replaced the snacks that were full of sugar and fat with healthy choices like carrots, apples, grapes, cheese sticks, cheerios and gold fish crackers. A breakfast in the classroom program was added to provide another option for children that for whatever reason are not getting breakfast at home. According to the Lets Move website (Let's Move!, 2015) many researchers say, children need at least 60 minutes of physical activity each day to maintain a healthy lifestyle. The website also describes how along with healthy eating, physical activity can prevent obesity, build lean muscle, reduce fat, and promote strong bone, muscle, and joint development (Let's Move!, 2015). It improves mental health by relieving symptoms of depression and anxiety and increasing self-esteem (Let's Move!, 2015). My review of the literature for this capstone supports the idea that there are many benefits associated with children having physical activity each day and healthy eating habits are clear. The development of my movement-based curriculum also resulted in new learning for me as a teacher and those are described in the next section.

Major Learnings as a Teacher

A major learning from implementing my movement-based curriculum was that I needed to continue to look for new brain break ideas. What kept my class entertained at first eventually wore off and they needed something new to get them interested again. I also would find myself getting tired of certain things and would want something new. This can be time consuming at first but there are many great websites and interactive YouTube videos where teachers can find resources. One recommendation I have for teachers is to take the time to preview the whole video prior to showing the kids to make sure all the songs and actions are appropriate for school. Sometimes students will request certain songs that they do at home that turn out to not be school appropriate.

The driving force behind this curriculum and research was incorporating physical activity and movement into the kindergarten curriculum with the goal of helping to keep my students engaged. What I found when adding movement and physical activity throughout the day was that it did help the majority of my students to become more engaged and focused during learning time. They enjoyed the activities that got them up and moving and there were fewer behavior problems and less need for redirection. In fact often my students would request a brain break or to exercise throughout the day. As a teacher I believe that if my students are more engaged and focused this will support them in reaching their academic goals even though this capstone did not collect data on academic achievement.

My belief that increasing movement in my classroom can impact my student's academic achievement is being supported by research studies (Krakow, 2011; Jensen, 2005, 2003). Currently, there is no formal way to assess how movement and learning is

benefiting each child, but from brain research studies I reviewed for this capstone and what I observed in my classroom when implementing the movement-based curriculum I feel that it did benefit my students.

However, because of using the understanding by design process (McTighe & Wiggins, 2005) I recognize how important it is to collect data that I can use to support my belief. It also became clear to me that in kindergarten it is harder to measure how movement and physical activity are benefiting my students because kindergarten does not have the standardized testing found in the upper grades. While it is hard to have an assessment to accurately measure how physical movement is improving student engagement for this capstone I used my own observation and indirect evidence. Indirect evidence that my students were positive about the integration of movement-based activities included having them ask me for a brain break. Having my students asking for a brain break indicated to me that the brain breaks were working. That fact that my five and six years old were able to identify that their brains needed a break and they knew what they needed to be successful was evidence of the curriculum's positive benefits. In the future I would use this as an assessment to show the impact on students and would keep track of how many times they ask for them.

Even while the majority of my students were engaged there were some who struggled with direction and occasionally would be off task during brain breaks. On some days brain breaks required more classroom management than other days.

In implementing the curriculum I learned that not only are the brain breaks and movement activities important for my students, I also enjoyed them and benefited from them as well. I would often add an exercise or movement when I found myself needing a

break or my stress level getting high. After a brain break I was able to come back with more focus and energy. If it improved my attention and focus then I feel it also improved my students attention and focus.

When I first started this capstone in the 2013/14 school year I was teaching kindergarten. Since then I have moved to a different school and am teaching third grade. I have found that the movement-based curriculum I used in kindergarten can be adapted and used in a third grade curriculum. I used the same tools in both classrooms and have had the same results. In my experience movement and physical activity helped students whether six years old or eight years old be engaged and active in their learning. Given my experience in the next section I describe additional recommendations for teachers who are interested in creating their own movement-based curriculum.

Recommendations for Movement-Based Resources

There are many valuable resources and programs that are available to educate teachers on how to add movement and physical activity into their everyday routines. The resources that I used and mentioned in Chapter Two were key elements in how I planned my curriculum for my students. I designed it to ensure that my students were not sitting for longer than fifteen to twenty minutes. I found that taking my students to the S.M.A.R.T. (A Chance to Grow, 2014) room everyday was very beneficial for them both academically and physically. It provided a time for them to work outside of the classroom on sight words, letter identification, letter sounds, number recognition, and counting all while doing different physical activities. Once I got the expectations and rules set the program ran very smoothly.

My other favorite resource to use was Brain Breaks (Action for Healthy Kids,

2015, a & b). There are such a wide variety of things you can do during Brain Breaks and my students really enjoyed them. One of the activities we would do was Jammin' Minutes (Robert Wood Johnson Foundation Center to Prevent Childhood Obesity, 2012). Again, both of these tools worked well in both grade levels I have taught.

I found the song and dance videos I used on Dr. Jean's website (Dr. Jean and FriendsLLC, 2014), YouTube and the Have Fun Teaching website (Eberhardt, Frinkle, Quigley, & Wagner, 2014). These websites are full of different activities that can be used in your classrooms. The songs and videos I used from their websites were a great way to get my students moving and made learning fun. Active Academics (2005-2014) was another great source I used to find activities that would fit with the standard I was focusing on for both math and reading/language arts.

Importance of School Mission When Using a Movement-Based Curriculum

My school's mission was to combine energy and creativity to boost academic achievement for all students and to focus on healthy living and art of all kinds while giving our students the tools for learning. While it was easy for me to implement my curriculum because my school's mission was to get kids active and healthy, not all schools have this mission and may want more focus on other areas. I think there are so many great ways to add movement without taking away from learning time. Movement and physical activity can easily be added to any curriculum that a school has chosen. As more and more research is done that shows how physical activity improves learning I feel that more schools will make it their mission to improve learning through healthy living and movement.

Limitations of the Study

One of the limitations I found while implementing my curriculum was that I did not take anytime to reflect in a journal about what worked and what did not. I would recommend keeping a journal so that you can reflective on what your class responds well to and what you can leave out the next time. I worked alone on developing my curriculum and recommend working with your team when starting to develop a curriculum. Every teacher has different ideas and it is very beneficial to have colleagues to discuss the curriculum with as you go. Understanding By Design (McTighe & Wiggins, 2005) recommends using a peer review process when developing the curriculum. I think having a peer review your work would be very beneficial because they would give you constructive feedback that you could use to improve curriculum.

Recommendation for Future Research and Communication of My Results

For future research I recommend working as a grade level when implementing this curriculum so that you can compare similar students across the grade level. The data that your team collects can be used to modify this curriculum or for future curriculum development.

My curriculum has already been modified to be used in a third grade classroom and can be modified to be used in any elementary classroom. While the curriculum will be different the movements and exercises will stay the same. The amount of physical movement needed might vary amongst grade level or classroom. Some may need more movement and others may not require as much.

In the future I hope to attend workshops or conferences on physical activity in the classroom so I can add to my curriculum and hopefully present at a staff meeting. I think

it will be helpful for other teachers who may already be adding movement into their classrooms to hear how other teachers are doing it. I hope to inspire teachers to use this curriculum or develop their own. My overall goal is to get kids active and improve their health and learning.

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