CLASSROOM-BASED PHYSICAL FITNESS AND
ACADEMIC ACHIEVEMENT:
A CASE STUDY

By
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A dissertation submitted in partial fulfillment of
the requirements for the degree of
DOCTOR OF EDUCATION

WASHINGTON STATE UNIVERSITY
Department of Educational Leadership and Sports Management
DECEMBER 2019

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the dissertation of MANDI CHRISTINE REHN find it satisfactory and recommend that it be accepted.

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ACKNOWLEDGMENTS

I set a goal when I was much younger to achieve a dream of obtaining my doctorate. Twenty-two years later here I am. I would have never finished if it were not for my amazing husband who pushed me to finish. He has been there for me and encouraged me daily to chase my dream. He makes me want to achieve all of my dreams and challenges me to be fearless in my life. Thank you to my children: Kennedi, Hunter, and Pattyn for allowing me to pursue this dream. I have missed important events in their lives to complete this dissertation and they have been nothing but super supportive in allowing me to be a mother and a student. To my parents, Darrell and Chris, I could have never accomplished this without your love and support. You have been there for me and for my family so that I could reach this goal. This dissertation sums up a lot of hard work and I hope this makes you proud. My family has been the reason I was able to accomplish my dream, and I can’t thank them enough for all the love and support.

Thank you to my amazing chair, Dr. Johnny Lupinacci, who guided me, encouraged me, and constantly shared words of support. I’ve enjoyed the work, conversations, and feedback. To Dr. Teena McDonald, and Dr. Rick Sawyer, thank you for your thoughts, ideas, and support. I appreciate you taking the time to help me on this journey. Thanks also to all the professors who helped me along the way, your guidance and love have shown in all of my work.

Lastly, I would like to thank the staff at my school. I work with the best group of people around. They have supported me, encouraged me when I needed it, and loved me through it. I would especially like to thank Becky Banks, Mikki Svelmoe, and Susan McMillan for joining me on this adventure. I hope they see their voice in this work and see how proud of them I am. We are doing great things for students at our school and I am proud to be a part of that.
CLASSROOM-BASED PHYSICAL FITNESS AND ACADEMIC ACHIEVEMENT:
A CASE STUDY

Abstract

by Mandi Christine Rehn, Ed.D.
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Chair: John Lupinacci

Jenson’s (1998) so called “factory model” is in question in K-12 public education today. It is hard to wrap your brain around this notion that one size fits all, and that if we just work hard enough we will produce students ready to take on our future. Students do not come to school ready to learn in the same ways, nor do they learn in the same ways. Engagement is key to students’ interactions with learning and educators have spent decades trying to find out how to keep students engaged. Researchers like Jenson (1998), Gregory and Kaufeldt (2015), and Medina (2014) suggest that student’s brains need physical movement for the brain to learn best. Furthermore, researchers Katz et al (2010), Trost and van der Mars (2009), and Pate et al (2006) suggest that movement is vitally important in the school setting for increased student learning.

The overall purpose of this study is to contribute to the literature regarding how classroom-based fitness activities effect high poverty students’ interactions with literacy and engagement. More specifically, the purpose is to better understand the experiences of first grade students and first grade high poverty students with classroom-based fitness activities, and how those experiences effect their engagement with reading and writing.
This action research informed qualitative case study takes place in a large elementary school where qualitative research methods were used for data keeping and analysis. Through interviews of teachers, study team agendas, and student voice shown through drawings, the action research team was able to explore student engagement before, during, and after classroom-based interventions were implemented. The study found four overarching themes: engagement, movement, movement influences all, and teaming for learning.

Implications for school systems include a need for increased professional development for educators working with high poverty students, socially just leadership through collaboration, and a focus on equity throughout the school system. Policy implications include a need for a deeper understanding of poverty and the poverty line and how it effects our students in the classroom, as well as policy referencing the need for movement in our school day.
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Dedication

Gregoire

All I really know,

You’re where I want to go

Eighty-seven years.
CHAPTER ONE

INTRODUCTION TO THE STUDY

Cutting off physical exercise - the very activity most likely to promote cognitive performance - to do better on a test score is like trying to gain weight by starving yourself. A smarter approach would be to insert more, not less, exercise into the daily curriculum (Medina, 2014, p. 33).

School systems are constantly evolving and changing. Teachers in classrooms spend hours a day teaching the required curriculum and social skills. Starting with the No Child Left Behind Act (NCLB) of 2001, pressure was put on school systems to improve student test scores in literacy, math, and science. This pressure put on school systems caused those school systems to examine curriculum, time spent on curriculum, and effectiveness of curriculum. With this push from the federal government school systems re-evaluated the school day. Lessons that once took 30 minutes to deliver, now needed to increase in length. Literacy became a focus, specifically at 3rd grade, and all schools maintained the goal to increase on-time graduation rates. Core academic subjects took precedence over all other subjects, and subjects like physical fitness were at risk for getting cut down or removed from the school day.

Even with years of brain research by researchers such as Medina (2014), Gregory and Kaufeldt (2015), Jenson (1998) and others, schools still felt pressure to let go of movement during the school day. Most school systems only provide the required minutes during the school day like Coe et al. (2013) report, “An example would be to ensure that schools are adhering to state-specific mandates for physical education and activity during the school day” (p. 505). Each state mandates the required number of minutes of physical education to be provided and most of
the minutes are obtained during a health and fitness class or at recess in the elementary school.

Medina, suggesting that educators and educational researcher must pay attention to (2014) notes:

> We are not used to sitting at a desk for eight hours a day. From an evolutionary perspective, our brains developed while we walked or ran as many as 12 miles a day. The brain still craves this experience. That’s why exercise boosts brain power in sedentary populations like our own (p. 2).

We have years of research on the brain to know that humans need movement in their lives. Humans connect better, remember better, and engage better when they move their bodies. In the classroom, children need to move and Medina (2014) reports that, “At 9 minutes and 59 seconds, you must do something to regain attention and restart the clock—something emotional or relevant” (p. 2). Movement in the school day is vitally important for all students, and we must take time to provide interventions for students to help them to engage with the curriculum.

**Education Policy in Relation to Physical Fitness**

First, all recognize that public education policy in the United States has been rapidly changing in many different directions and at all levels of governance. This rather frenetic pace of change is grounded in policy makers’ nagging sense of educational malaise, combined with an urgent concern that social, political, and economic well-being are at stake for both individuals and communities (Mitchell, Shipps, & Crowson, 2018, p. 1).

Each decade has had its share of policy that has continued to shape education. The 70’s were filled with policies addressing inequity across social groups, and contexts. I am particularly thankful for Title IX and what it has specifically done for women in all areas of life. Education for all called out inequities in programs across all of education, and caused us to accept “all” as our responsibility to educate. The 80’s brought with it some key turning points and a boom in
technology. The A Nation at Risk Report of 1985 highlighted perceived problems with education, and created a need for a huge push in reform into the 90’s. This 90’s reform incorporated business influence, private schools, and initiatives like Teach for America; along with the Gun Free School Act. This need for reform pushed us into the 2000’s where we set our sights on accountability for all schools. The No Child Left Behind Act (NCLB) increased accountability through state testing, and then state testing went to national testing, and the creation of the Common Core State Standards (CCSS). Today we debate firearms, zero tolerance for discipline, transgender bathroom rights, all the while still pushing for increased test scores for all children.

The last 40 plus years of educational policy can be framed through four contrasting social paradigms: goal-oriented functionalism, power-based conflict theory, marketplace exchange, and symbolic interaction (Mitchell, Shipps, & Crowson, 2018). In goal-oriented functionalism the school emphasis is on institutional effectiveness, and the push for effectiveness fits into the 90’s era of school reform. Power-based conflict theory is sometimes seen as the machine, producing student after student with the same set of skills ready to go take on the world, but for schools also allow equal opportunity for all, connecting to the policies from the 70’s. Marketplace exchange, or the need for supply and demand, emphasizes competitive achievement such as Race for the Top of the 2000’s. Symbolic interaction fits into all the decades, as do all the social paradigms written about by Mitchell, Shipps, and Crowson (2018), but calls for schools to identify cultural identity.

Educational Policy has completely shaped who we are as educators, and how we teach our students in today’s world. The social paradigms run throughout the decades, and allow us to ground our thinking to specific social norms; furthermore, explaining how we arrived to where
we are now. Good or bad, these policies have guided our quest in educating all children while continuing to reform over time. Good leaders will operate by understanding policy and deciding what the policy initiatives should look like in their own context.

Specifically, public education policy has greatly affected fitness and academic achievement over the past 40 plus years. Three specific policies have effected academic achievement and the need for increased learning in the classroom. These policies have intentionally created a need to look deeper in the classroom, and learn about effective teaching practices. Title IX, NCLB, and the Healthy Hunger-Free Kids Act in partnership with the Let’s Move initiative (Mitchell, Shipps & Crowson, 2018), are three policies that have shaped the need for increased instructional practices, healthy schools, and accountability in the classroom. All three of these policies have been centered on access for all, increased academic achievement for all, and hold accountability for students academically as well as physically. These policies have created avenues to explore the classroom and to look at specific teaching practices. After implementation of these policies we have learned that children need to move. Through the brain research of Gregory and Kaufeldt (2015) and others, we see the importance of movement for humans and specifically for students throughout the day. Gregory and Kaufeldt (2015) share:

When we sit too long, blood pools in our lower extremities, and oxygen and glucose are depleted in the brain. Movement helps pump blood to the brain. It lowers cortisol and saline in the blood and increases dopamine. Asking students to move into groups, stand and talk with a partner, distribute supplies, or give a standing ovation to a presentation are ways of moving within class time (p. 137).

Health and Fitness classes in all schools, increased recess in schools, and now increased movement in the classroom are being held to a high standard for students. When humans move
they can potentially be more productive, and engaged in life and in the classroom. We know movement is key to learning and engaging in learning, but we struggle to find the time to implement movement such as classroom-based fitness activities on a regular basis in the classroom. As Lambourne et al. (2013) note:

Despite the rapidly growing body of research surrounding the importance of physical activity and aerobic fitness for cognitive function, academic and general well-being for children, budget cuts in education as well as a demand for increasing instructional time and standardized test scores have resulted in decreases in physical and other non-core academic courses (pp. 169-170).

Schools today are pressured to have students perform well academically in mathematics, reading, and science. This pressure put on schools and teachers causes them to examine each school day, and decide what to teach, and what to cut out. Teachers have to make decisions on what is most important for students to learn in the given school time. With increasing awareness on childhood obesity and a push from the federal government to have healthy schools, teachers are reevaluating their priorities for curriculum in and out of the classroom. Donnelly and Lambourne (2011) remind us, “However it should be noted that schools promote a sedentary lifestyle. Children spend between 6 and 8 hours in academic instruction per day” (p. S36). This sedentary lifestyle is what happens when teachers only teach reading, mathematics, and science, and do not allow time for physical education, classroom-based fitness activities, or increased time in physical education classes. Sardinha et al. (2015) further explain:

With an increasing emphasis on the so-called academic disciplines, such as languages, mathematics, and sciences, decision-makers are under pressure to adhere to high academic standards. This may have implications on the curricula limiting time for PA and
physical education, which in turn may negatively have impact on students’ physical fitness (p. 873).

These high academic standards put school systems in situations where they have to decide what is best for their students. The problem school systems are facing today is how to achieve high academic standards while engaging children’s brains. These conditions set the stage for the problem of practice of this dissertation.

**Problem of Practice**

In order to investigate the effects of physical fitness on academic achievement of high poverty students, and students’ development of literacy skills, one must first establish what strengths and challenges come with trying to teach the core curriculum (reading, writing, and math), along with physical education activities. This case study of a participatory action research team asks: *To what extent, if any, do classroom-based fitness activities influence interactions with literacy for high poverty students in my school?* The overall purpose of this study is to contribute to the literature regarding how classroom-based fitness activities effect high poverty students’ interactions with literacy and engagement. More specifically, the purpose is to better understand the experiences of first grade students and first grade high poverty students with classroom-based fitness activities, and how those experiences effect their engagement with reading and writing. Few studies focus on the intersection of fitness in the classroom and first grade students. In addition, fewer studies focus on the connection between fitness and reading and writing engagement.

In my school, Moments Elementary, this research question is very significant to our work as educators. Over the past 10-15 years Moment’s demographics, as shown on The Office of the Superintendent of Public Instruction (OSPI) website (2018), have significantly changed, creating
a completely new culture of students with some unique needs. Moments Elementary School is located in School District A. To keep anonymity and to observe that for the participants, and for the sake of the research we will refer to the district as School District A. The purpose of our organization is to educate the whole child and to show students everyone deserves a chance and that they are all worthy of an education that will lead them to a better life. Our why statement is THIS IS YOUR MOMENT! Everything we do at Moments Elementary is all about student growth and learning. That takes into account everything from feeding students, teaching expectations, counseling, behavior management, fun, academic curriculum, and working with parents. Everything we do every day is about students learning and growing.

Moments Elementary is one of the lowest income schools in District A, with 615 children and approximately 77% free and reduced lunch. We have 39 ELL students, 43 homeless students, 9% special education population and about 50% of our school receives reading support through our federally funded Title 1 and LAP support programs. We have 54 teachers and 81 staff members, with the majority of our teachers having their master’s degrees. Our population is 76% White, 10% Latino, 4% African American, 3% Native American, 1% Asian, 1% Pacific Islander, and 5% are two or more races. Our school consistently outperforms others with similar demographics on state and national assessments and we recently won a Washington State Achievement Award for high progress, but we are still unsuccessful when it comes to achieving an outcome of all third graders at benchmark by the end of 3rd grade. Hernandez (2011) reminds us:

Children whose families live in poverty often lack resources for decent housing, food, clothing, and books, and they often do not have access to high quality child care and early education or to health care…Consequently, children in poor families tend to develop
weaker academic skills and to achieve less academic success. Many arrive at kindergarten without the language or social skills they need for learning (p. 7).

When we take a step back and look, we see that the problem starts before they ever enter school and in those early years of elementary school. When we look at our students entering kindergarten, we see that they are coming to us unprepared for the daily six-hour curriculum we are providing. These students are struggling academically, verbally, socially, and behaviorally. They have academic problems, classroom outbursts, blow-ups, and a lack of social skills to help them solve problems. Our Moments Elementary students need engagement, and engagement that pushes them to higher levels.

We know the value of students being engaged and we strive every day to provide interventions that help them focus and engage with the curriculum. As educators at Moments Elementary, we see increased engagement after physical activities, and we want to know if this increased engagement is influencing academic achievement, and development of literacy skills. Moments Elementary was the perfect site for this research study. Being the principal of this school provided me with opportunities to do observations, secure data collection, and to implement interventions to try to help our students to be more successful academically. Our scores report that with the interventions we have tried, we are making progress, but it shows there are still students we are not reaching for support and help. This research design allowed Moments Elementary the chance to try new interventions for students to influence their academic achievement.

**Childhood Poverty**

The word ‘poverty’ is hollow until it is given a human face. It is a situation that places human beings in a state of hunger, sickness, and powerlessness. Poverty is living 1 day at
a time, with no access to basic daily needs of food, clean water, education, and health care (Vidyasagar, 2006, p. 325).

How do we define poverty and childhood poverty? How is poverty thought about and talked about? How do we become advocates for children living in poverty? These questions are broad and will take time and energy to start to understand. In a school system we are greatly affected by childhood poverty and families living in poverty. Our job is to find where each student is and to help them grow from that place to their fullest potential. For example, as in School District A, we have seen great change in our community over the past 10-15 years. As shown in OSPI (2018) school report card data, our district has increased greatly in our percentages by about 15% more families living in poverty. As these numbers have begun to rise it has affected the kinds of supports we need to put into place for students to learn and grow properly. There are obstacles for learning for many of our students and families, and we struggle to help them through all of those. We often do not fully understand their needs and how to help them.

For students living in poverty we start to ask ourselves how to be the best advocate for the whole child, what supports do we have, what supports do we need to get, and how do we approach students to help guide them to be successful. In School District A we are continually trying to advocate for more funding, more programs and working with families and students to help them get to success, but we are still not reaching every student. For students living in poverty the educational system can be a way out. Karabanow (2016) reminds us that by taking a look at the children in society we can see how well we are performing (p. 369). If we are ever going to make a difference we must invest in the lives of the children. We must have a critical lens to look through on what poverty is, how we define poverty including childhood poverty, and
all the various forms of poverty, and then start to create a place where we can all be advocates for children living in poverty.

Our school system is that chance for students. It is the place where they can learn, grow, and take risks in a safe environment. They can get an education, gain confidence, and strive to make a better life for themselves. We are attacking this struggle in school systems one student at a time, but I think we need a deeper understanding of what childhood poverty is so we can start to break down barriers to learning, and really help students succeed. Lichter (1997) talks about how a large number of our poor students will become our poor adults (p. 121). He reminds us that the perception is there in an increasing number of children at risk, and that schools have been unable to compensate for the deficits in the home (p. 122). The task set before us as school systems is very large and many people think too large for us to make a difference, but I have to believe that we can and will make a difference for children. Through continual research, practice, involvement, and genuine caring I believe regardless of how many students living in poverty we have, we can still help everyone succeed.

The education students receive is not all about academics. The teacher is so significant and can have such a large impact on the lives of their students. At school, not only are teachers teaching academics, teachers are teaching cooperative learning skills, social skills, manners, and character skills. We are trying to create well-rounded citizens for tomorrow’s future, a future we have no idea about what it will look like. The teacher can have an enormous impact on students in all parts of their life. The teachers embrace each student and provide every support possible that the students may need, which will help now and in the future.

Leadership for Educational Equity
“The biggest threat to equity is not having a system” (T. Campbell, personal communication, October 12, 2018). Social Justice, equity, and inclusion happen when all people have a right to equitable treatment, access to resources, and are provided equal opportunities. To me as a leader, it means providing opportunities to all students and staff in a school system regardless of race, religion, color, or sexual preference. Living in, and creating an environment that is socially just, is what we should be striving for as leaders. This kind of environment provides opportunities for all, challenges injustice, and values diversity. This socially just environment would be safe, secure, consistent, and relevant to all regardless of their differences. I believe equity is at the core of productive societies, and school systems that are growing and doing the best to make things better for all students.

Bell (2007) writes about full and equal participation for all, and to me that means not just providing the opportunities for all students, but also making sure that all students and their families are taking advantage of those opportunities. This continual push to provide equal access to all will help society as a whole to continue to learn and grow while capitalizing on its strengths. Smith (2012) touches on the importance of education and social justice. We need to prepare the next generation of workers to become self-reliant, and responsible citizens. Smith (2012) connects justice as harmony, justice as equity, and justice as equality. Justice as harmony would be based on merit and for those who deserve it or earned it. Justice as equity would be based on need and only those with the need would receive. Justice as equality would be equal treatment for all (p. 8). To be just is to be consistent and relevant in the lives of all students. I believe justice as equity would allow all students to grow, and thrive in society. Educational outcomes would be provided for all students in an equitable way. Leaders must believe that
every student has worth. Socially just K-12 education would allow all students to set goals and to strive to achieve those goals with appropriate support along the way.

A socially just society is not unequal and does not oppress others or marginalize them. Camicia (2015) reminds us about our positionality, and that if we do not recognize how our positionalities are related, we can’t appropriately dialogue with others. Camicia (2015) also states, “The meaning I use here involves seeing someone as they see themselves. It means seeing something that is already there but was initially unseen” (p.169). Defining our own positionality is very important in social justice leadership. Leaders must recognize their positionality and privilege, and the positionality of those whom they are leading and working with. Being able to recognize our privilege helps us as leaders to see students where they are. “Because privilege is a social relation, it is the responsibility of privileged group members to eliminate privilege” (Egan, 2002, p. 267). As leaders we must push to eliminate privilege and the positionality that comes with privilege. To see others in their own ideals and beliefs allows a socially just leader to understand where they come from, and how to lead them in their journey towards their goals.

**Transformational Leadership**

Providing an equitable and consistent education for all students is social justice leadership. The socially just leader is the one who puts everything on the line to create equal opportunities, and equitable access for all students in his/her district. A mentor of mine has stated “What is the hill you are willing to die on as a leader?” (T. Campbell, personal communication, October 13, 2018). For me, that hill is equity for all students whom pass through our school systems on their path to success. Santamaria and Jean-Marie (2014) identify transformational leadership and how leaders can make a difference in the lives of children. Regardless of culture and race, a transformational leader inspires followers to look past their own interests for the good
of the group. This pushes leaders to think about leadership in a whole new way; specifically K-12 school leaders. We as K-12 school leaders, need to move to a more holistic and culturally relevant way of leading. Santamaria and Jean-Marie (2014) find six core themes of personal leadership; leading from the inside out, working difference as a resource, self-reflection, making a choice of being, looking at ourselves first and then committing to the work (p.343). The six themes help a social justice leader to transform and look within to better the group they are leading. A social justice leader promotes social justice and educational equity by modeling on a daily basis this consistent and just view of the environment around them. Being a transformational leader guides others in appropriate, fair conversations about difficult topics in the school settings. By modeling this thinking and learning and opening up the dialogue; teachers, students, and families start to create connections, build relationships and foster environments that are equitable, and culturally responsive; where all students can learn and succeed.

**Discovery Learning/Educational Equity as a Connection**

This case study of a participatory action research team in a place, Moments Elementary, along with qualitative methods, folds into itself two theoretical frameworks as lenses that we used while doing the work. During this action research cycle we looked at classroom-based fitness activities and the implementation of those activities into first grade classrooms. We used the lenses of Discovery Learning along with Educational Equity while we worked through the phases of the action research study. Van Joolingen (2007) tells us, “Discovery learning is a type of learning where learners construct their knowledge by experimenting with a domain, and inferring rules from the results of these experiments” (p. 386). As an action research team we were discovery learners trying to make meaning of what we were implementing in classrooms.
Teachers in classrooms discovered about their student’s learning, their own learning, and how the experience of classroom-based fitness activities may or may not have influenced student’s interactions with literacy. By using Discovery Learning, informed by brain research, the participatory action research team was able to dive into student’s learning and discovery. Discovery learning is an active learning and Svinicki (1998) further explains:

Active participation provides you an opportunity to get early feedback on your understanding. Too often, instruction continues at the instructor’s pace with little concern about or information about whether you, the learner, are “getting it.” When you are actively involved in solving problems, gaps in your understanding cannot be ignored” (p. S5).

Educational Equity was an additional lens used through leadership to study students at Moments Elementary. An education equity lens fits directly into the school setting as it reminds us to pay attention to all students and their needs. The study team worked to include all students and through the action research cycle recognized differences for students, and where unique adaptations might be integrated for students. The work of Tannenbergerova (2013) helped center our focus:

Inclusion is such an educational system which allows all children to attend common basic schools. Teachers in inclusively oriented schools must treat every pupil individually as a unique personality. Not only classwork, but also the whole organization and philosophy of a school is based on an individualized approach to the children. Every child has its educational strategy which is adjusted to its competencies, talents, and handicaps (p. 551).
Educational Equity was at the forefront of this study for myself, the researcher and leader of the school, and the participatory action research team. Although equity is something we strive for in schools, this lens helped us focus in on students, their experiences with the classroom-based interventions, and their interactions with literacy. This lens allowed the participatory action research study team to continually monitor and evaluate all parts of the study as we looked, thought, and acted on this problem of practice.

This case study of a participatory action research team with qualitative methods, along with the theoretical frameworks of Discovery Learning and Educational Equity was designed to reflect the experiences of a school team and its journey. This study paralleled the school improvement plan and helped the team to understand how classroom-based fitness interventions influence students’ interactions with literacy and the development of literacy skills. This information gained from this study has worth for our students and our action research teams, and gives further insight as to how our students of poverty experience the classroom, classroom-based fitness activities, and literacy development.

**No Child Left Behind Act**

A policy that still lives today and shapes our work as educators is the No Child Left Behind Act (NCLB) of 2001. This act of congress reauthorized the elementary and secondary education act. It included Title I provisions for disadvantaged students, and supported standards based education reform (Mitchell, Shipps, & Crowson, 2018). This Act allowed each state to develop its own standards, and expanded the federal role in public education through further emphasis on annual testing, annual academic progress, report cards, teacher qualifications, and large changes in funding. It replaced the Every Student Succeeds Act and gave power back to the states. With NCLB came large accountability. One requirement, as shown by OSPI (2018),
100% of the students in the nation needed to provide evidence per state test that they were at grade level standards by the end of the 2014 school year. This accountability came with a list of sanctions for underperforming schools, along with some additional funding to help support schools below the required percentage. Funding for K-12 education is further explained by Mitchell, Shipps, and Crowson (2018):

Few educators, and certainly not many laypersons, comprehend the awesome magnitude of the financial resources involved in supporting elementary and secondary education in the United States. Annually, the nation allocates approximately $850 billion to K-12 school support. This is funding for both operation of schools and the construction of new buildings. Total K-12 spending translates to approximately $13,000 per pupil per year (p. 95).

Although schools worked hard leading up to 2014, the Office of the Superintendent of Public Instruction (OSPI) data shows they did not achieve the 100% of students at or above grade level expectations (2018). With increased accountability came increased pressure and stress for families, students, and teachers. NCLB made teachers and administrators look at classroom teaching practices, reform expectations in the classroom, and become data informed about how to provide the best environment for learning. Expectations were raised for academic achievement, number of minutes on task or topic, and researchers spent hours looking into classrooms to determine how students learn best. This increase in data collection allowed educators to improve their teaching practices, gain new understanding of differentiation for all students, and create lessons where all students are engaged. Jenson (1998) states, “Amazingly, the part of the brain that processes movement is the same part of the brain that’s processing
learning” (p. 84). Engagement is pivotal in student learning along with on-task behaviors and movement keeps our brains engaged.

With student engagement being a focus on teaching, researchers started to look at the amount of time students were engaged in the curriculum. Research on the brain suggested that the more students were active the more their brains were active, and there became an increased need for students to move and be active. Katz et al. (2010) reported, “The US Department of Health and Human Services (HHS) recommends that children and adolescents engage in 60 minutes of physical activity per day” (p. 1). For the first time schools were incorporating minutes into their schedules for movement in the classroom, breaking up lessons, and trying to engage students in the classroom for longer periods of time. Carlson et al. (2008) note:

Expanding physical education programs may increase the benefit in academic achievement as well as enhance other potential benefits, such as increasing physical activity levels, improving physical fitness, increasing knowledge about physical activity, and improving psychological health (p. 724).

We see an increased need for students to be active throughout the day at Moments Elementary as well. Teachers report when students sit too long during a lesson the on-task behaviors decrease, and it’s shown visibly in the classroom. With increased rigor, the demands of the new Smarter Balanced Assessment (SBA) test scores, and the need to produce students at higher academic levels, teachers are doing everything they can to try help students to stay engaged in the classroom. At any given time in our building you will see students taking breaks, engaging in purposeful classroom-based fitness activities, doing yoga, extra recess, or even a quick cardio video in the classroom. All of these activities provide students the time to disengage, increase their heart rate, have some fun, and then go back to focusing on the academic
topics in the classroom. NCLB plays out today in schools still through increased testing, accountability, rigor in the new standards, and differentiation in the classroom.

**Significance of the Study**

Educators recognize a difference is student’s engagement with classroom tasks after students have been engaged in an activity that gets their heat rate up. For years, teachers have done things like brain breaks, brain gym, yoga, GoNoodle, and just plain old jumping jacks during the school day when they feel students are disengaging. These strategies have been in place in classrooms all over the United States for years, but they have rarely been researched for effectiveness. We can’t help but wonder that if students seem more engaged, how much additional learning might be taking place due to these creative teacher interventions. I am so excited that I got the chance to study classroom-based fitness activities and their influence with student’s interactions with literacy. By studying the children at my school we are now able to share with others what we have discovered while doing this case study. To be able to work with my teachers and my students allows me to help other teachers and students as we move forward as a school building.

**Organization**

In this chapter I provided an introduction and overview of the research problem that is framed by the research question. Chapter one gave a short view of the topics of importance to the context of the research: policy, problem, poverty, leadership, discovery learning and educational equity. By using discovery learning informed by brain research for educational equity, of all the students at Moments Elementary the readers will gain a brief understanding of the study. This chapter also included the purpose of the study and the conceptual frameworks. The literature review in chapter two further extends our knowledge and takes us through six topics: child
development and the brain, poverty and the history of poverty, engagement, fitness and health in the school setting, and different types of fitness and academic achievement. Additionally, it covers research introducing and defining increased physical activity and classroom-based fitness activities, the need for physical activity in school, discovery learning and educational equity, and the challenges in implementation of physical activity in schools. Chapter three includes the methodology used in this case study of a participatory action research team, the researcher positionality, setting of the study, participant selection, data collection and analysis, and ethics of the study. Research findings and themes are outlined in chapter four. In chapter five, (Discussion, Implications, and Conclusions), the focus is on the summary of the findings, recommendations, and discussion around the study.
CHAPTER TWO
LITERATURE REVIEW

The paradigm of schooling was developed in the 1800’s and popularized throughout most of the 20th century. Often called the “factory model,” it drew from fields of sociology, business, and religion. It emphasized useful skills like obedience, orderliness, unity, and respect for authority (Jenson, 1998, p. 2).

Jenson’s (1998) so called “factory model” is in question in K-12 public education today. It is hard to wrap your brain around this notion that one size fits all, and that if we just work hard enough we will produce students ready to take on our future. Students do not come to school ready to learn in the same ways, nor do they learn in the same ways. Engagement is key to students’ interactions with learning and educators have spent decades trying to find out how to keep students engaged. Researchers like Jenson (1998), Gregory and Kaufeldt (2015), and Medina (2014) suggest that student’s brains need physical movement for the brain to learn best. Furthermore, researchers Katz et al. (2010), Trost and van der Mars (2009), and Pate et al. (2006) suggest that movement is vitally important in the school setting for increased student learning. This literature review investigates research about the brain and child development, poverty, and discovery leaning and educational equity in relation to physical fitness, and academic achievement.

The research incorporates brain development in all children, including children of poverty, how a child’s brain learns and takes in information, and a background on poverty. Furthermore, this literature review also incorporates Discovery Learning in the classroom while studying Educational Equity driven through leadership. In addition, it dives deeper into fitness
and academic achievement by studying increased physical education in the school day, classroom-based fitness activities, and increased cardiorespiratory fitness, all together with five components of fitness (cardiorespiratory endurance, muscular strength, muscular endurance, body composition, and flexibility). It also incorporates a component of socio-economic status, and the connection to physical fitness, and academic achievement. This literature review studies the existing research regarding physical fitness, and academic achievement as it relates to a school setting.

**Child Development and the Brain**

The human brain is complex and evolved over time to become what it is today. Originally its main function was survival and over time our brains continued to grow and get larger as we adapted to our environment. Biologists have spent years studying the human brain and have shown it is made up of two hemispheres, left and right. Siegel and Bryson (2011) like to think of it this way: the left brain cares for the letter of the law, and the right brain cares for the spirit of the law (p. 16). Siegel and Bryson (20011) believe, “In terms of development, very young children are right-hemisphere dominant, especially during their first three years. They haven’t mastered the ability to use logic and words to express their feelings, and they live their lives completely in the moment…” (p. 16). Our brain is designed to connect and use both hemispheres in daily living and communication is always taking place between both sides. Siegel and Bryson (2011) note:

We want them to become horizontally integrated, so that the two sides of their brain can act in harmony. That way, our children will value both their logic and their emotions:
they will be well balanced and able to understand themselves and the world at large (p. 17).

As children start to grow they begin to incorporate using both hemispheres of the brain into their daily lives. Siegel and Bryson (2011) go on to further explain that once we understand the two hemispheres, we must then learn about the top and bottom of the brain, upstairs and downstairs brain (p. 38). Scientists talk about the downstairs brain being more primitive, in charge of basic functions like breathing, reactions, and emotions. In contrast, the upstairs brain is more evolved and can give you “a fuller perspective on your world” (Siegel and Bryson, 2011, p. 40). The upstairs brain helps with sound decision making and planning, gives us control over our emotions, and has self-understanding, and empathy for others. Siegel and Bryson (2011) share:

A child whose upstairs brain is properly functioning will demonstrate some of the most important characteristics of a mature and healthy human being. We’re not saying she’ll be superhuman or never display childish behavior. But when a child’s upstairs brain is working well, she can regulate her emotions, consider consequences, think before acting, and consider how others feel- all of which will help her thrive in different areas of her life, as well as help her family to survive day-to-day difficulties (p. 40).

It takes years for a child’s brain to fully develop and through those years children will get stuck from time to time in one or the other of the hemispheres, or get stuck upstairs or downstairs, mainly downstairs as they grow and develop into themselves. Understanding brain development for children will help us to further investigate children and engagement and to help them get un-stuck.
A Brief History on Poverty

Gregory and Kaufeldt (2015) state, “The brain’s original purpose was not to go to school but to survive and thrive” (p. 19). In 1968, a psychologist named Abraham Maslow set before us a hierarchy of human needs starting with the most basic. He believed that these needs had to be met in this order before anything else can happen for us as humans. Gregory and Kaufeldt (2015) list those needs as, “Physiological needs: food, water, air, shelter. Safety needs: security, order, freedom from fear. Belongingness and love: friends, spouse, children and family. Self-esteem: self-respect, achievement, reputation. Self-actualization: becoming what the individual has the potential to become” (p. 19). In relation, the childhood developing brain is driven in this order of hierarchy as well, starting with first the need to survive. When children enter our school systems without these basic needs being met their brains are going to concentrate on meeting those needs instead of concentrating on what we think is most important. As stated by Flores (2012), “When you are hungry, you can’t think about anything else” (p. 367). Childhood poverty effects the brain and its ability to move upstairs and make rational decisions. Childhood poverty does not allow the brain to develop and proceed in the order we would like. Gregory and Kaufeldt (2015) remind us as educators:

As we think about motivating our students, we must first recognize that their basic needs— as well as other needs such as feeling safe and belonging— must be met before they can focus on fulfilling higher-order needs such as learning and self-development (p. 22).

Poverty Defined

As educators, we must have a critical lens to look through on what poverty is, how we define poverty and childhood poverty, the forms of poverty, and then start to create a place where
we can all be advocates for children living in poverty. We also need to understand the history of poverty so we can help guide our students in the future. Ms. Mollie Orshansky, a statistician in the department of Social Security Administration, is credited with providing the definition of the poverty line in the US in 1963. She used data from 1955 on what a minimum diet would cost for different sized families. This became the definition of the poverty line in the US, but these calculations have never been updated (Vidyasagar, 2006, p. 325). The poverty line is the minimum level amount necessary to satisfy basic needs.

Each country uses poverty lines that are relevant to their development and values. Vidyasagar (2006) shows that the poverty line matters greatly to families living in lower income groups. The minimum income required to meet the minimum basic needs is constantly changing and that is significant for families. Poverty affects the most vulnerable in a society and can be a vicious cycle. Globally, a definition has been created and is known as PPP or purchasing power parity. This definition is based on earning one dollar a day to meet basic needs, and based on this definition it is estimated that there are two billion poor people in the world. It is stated that “66% of the world’s population lives in poverty” (Vidyasagar, 2006, p. 326). Measuring poverty is not easy and poverty is often defined by the lack of means to provide basic needs. We define that through housing, education, and access to basic health care.

Fisher (1992) further explains poverty in thresholds and guidelines. In 1963 when Mollie Orshansky developed a measure to assess the relative risks of low economic status, a new general measure of poverty was formed. This initial version of a poverty threshold was for families with children only. After this publication The Johnson Administration announced its “War on Poverty” in 1964 (Fisher, 1992, p. 2). This set an official poverty line for families of all sizes and many were concerned that different size families required a different expectation. This
caused Orshansky to develop two sets of poverty thresholds. In 1969, a revision was made to the poverty thresholds, which moved the poverty line down. The Social Security Administration, along with others, convened to create a new threshold and thus made the thresholds the federal government’s official statistic of poverty guidelines (p. 9).

During the 1970’s, Fisher (1992) talked about how a committee met to discuss replacing the word poverty with a term such as low-income. People felt the word low-income was a bit less offensive and really described what was going on with families. By 1975 both terms were being used side by side, even though it was never officially changed in the legislation. Currently we use both terms when speaking about student or families who are struggling to make ends meet. This definition of low-income seems to take away the stigma or stereotype that comes with the word poverty. Our students do not want to hear that they live in poverty and feel better identifying themselves as low-income. This is a conversation that needs to occur in a school system so that families are feeling supported.

Fisher (1992) found that during the 1980’s there were many debates about poverty measurement even though there was no official review on the poverty thresholds (p. 13). It was not until 1990 that administration approved an initiative on improving the quality of federal economic statistics, which again changed the low income threshold. In recent years there has been an increased interest in poverty and the measurement of poverty (Fisher, 1992, p. 1). Each administration that comes into office has an agenda on how to fight poverty. From Johnson’s War on Poverty, to current talks about poverty, it is an issue that is still here and that we need to continue to keep working on.
If we take a look back at the history of poverty we look at the research of Sycheva (1999) and her work on the history of measuring the poverty level. The study of measuring poverty goes back over 200 years and seems to have been of great importance to important people in society. Sycheva (1999) shared:

This is understandable, since poverty is considered the most social of all social problems, the one which almost the entire range of sociological concepts as economic status and income, social inequality and stratification, the distribution of a nation’s wealth and its population’s living standards, the culture and subculture of the under-class, lifestyles and deprivation, vital needs and the consumer basket, the socialization of the poor and many others (p. 19).

In the 19th century to the first half of the 20th century, poverty was considered an inevitable consequence of the industrial development. Researchers believed that poverty reflected an excessive increase in the population and that the poor themselves were to blame and that furthermore as Sycheva (1999) states, “system of assistance only increases the problem” (p. 21). Families living in poverty were shamed and people believed that shame was actually a force that drove individual development. When you have nothing, all you have is to do something about it.

Other researchers of that time felt that poverty was social evil or a consequence one had to live through (p. 22). Later in the 20th century poverty became accepted as an inescapable reality and something each individual had to take responsibility for (Sycheva, 1999, p. 25). All of this led up to Molly Orshansky and her research on the poverty line and poverty thresholds in the 1960’s.
Childhood Poverty

Poverty is a large social issue and has been for a very long time. As we look at the research we also explore what Hickey and Bracking (2005) call chronic poverty or the continuation of poverty over time (p. 851). Hickey and Bracking (2005) report that “People who live in poverty over extended periods of time are the least likely to gain political representation and have few immediate or natural allies in either civil or political society” (p. 851). The continual poor are not being represented which can cause society to reproduce poverty instead of reducing poverty; creating childhood poverty. We do not hear the voice of poverty from those who are living in poverty and thus are not making great decisions about how to help them. In the school setting I believe this to be true as well. The students of childhood poverty are often the ones you are unable to connect with and support. The cycle just continues to grow from generation to generation. Hickey and Bracking (2005) believe that we must discourage the inequalities that keep people poor and that we must help the weakest members of society mobilize to actively claim their rights (p. 862). We must reach out and connect to these families and students of childhood poverty if we are to serve their needs and to help them grow.

How do we define poverty, childhood poverty, and what are its forms? Many researchers have done work on how to define poverty over the years. O’Boyle (1999) says “The question, what does it mean to be poor? Evokes a different response from one person to the next because each one’s answer is a reflection of a personal value system” (p. 281). Poverty occurs when the family in need lacks the goods and services needed to sustain and support life and the income to attain those goods and services. People agree on one thing, poverty exists, but they struggle to all agree on how to define it. O’Boyle (1999) asks us to take one step back and instead of asking the
question what does it mean to be poor, to ask the question what does it mean to be human? (p. 283).

Humans are individual beings and social beings. We are unique and individual and we all have our strengths and weaknesses. We cannot start to address the definition of poverty until we fully understand humans and human nature. O’Boyle (1999) believes that Orshansky was correct in starting with the cost of food to define poverty levels, but he argues that this standard is not direct or comprehensive (p. 285). The standard measures only one aspect of human need, food. It does not take into account housing, clothing, health care, transportation, and education. All of these factors are specific to each family and their needs. O’Boyle (1999) would argue that to best serve all individuals and families we need to be more comprehensive in our thinking. (p. 286).

When we want to look at a full definition of childhood poverty Boonyabancha and Kerr (2015) would argue that we need to engage with the people living in poverty in conversation about their own views of what it means to be poor. We can try to research and understand, but until we get the voice of the poor we really do not comprehend its severity. When working with the poor, Boonyabancha and Kerr (2015) found that income is not the only way to define poverty. In fact, there can be many different forms and through those different forms in combination with one another, the forms can cause people to become poor or poorer (p. 640). Work and income were very important but other factors should be considered as well: living conditions, nutrition, children and youth, legal status, transport, housing and political voice (Boonyabancha & Kerr, 2015, p. 641-642). As for the public school setting, which is free, there are also costs associated with school that can cause difficulty for families. The inability to pay for books, uniforms, transportation, and lunches can give reason to families to not attend, or finish school. We sometimes fail to realize that even though we think we are providing
something great for families, they are still unable to fully access those opportunities due to hidden costs.

Boonyabancha and Kerr (2015) found different levels of poverty and categorized them into five groups: the homeless, the scattered squatters, the general poor, the better-off poor and the poor room renters (p. 643-644). In each of these five groups the needs are different. It is our job as a society to assess those needs and to provide help and support to those in these different levels. Boonyabancha and Kerr (2015) stated:

Nobody in the world is born poor. Poverty is not something you are, but something that happens to you, because of certain factors or circumstances. Every human being is born of possibilities, with their own uniqueness and brightness, and should be able to grow and find happiness. But those things can get blocked by causes that may be beyond a person’s control (p. 645).

This research suggests that we must get to know the poor and their insights to form a better definition of poverty and childhood poverty. As Boonyabancha and Kerr (2015) show, the poor know the truth about poverty best. Boonyabancha and Kerr stated:

So many poverty studies are being done everywhere, all the time, but by people who have never been poor, never been evicted, never had to survive on earnings that are never enough. We have experienced all those things, and we know what poverty really means (p. 650).

There are many other researchers who also agree we must look beyond the standard definition of poverty if we are to really make a difference to families living in poverty. Ataguba, Ichoku and Fonta (2013) state that “The measurement, assessment and analysis of poverty are
traditionally linked to a single dimension-normal income or consumption” (p. 332). They believe we are shifting to an understanding of poverty in its multidimensional form. Their research recognizes the multidimensional nature of poverty and deprivation and shows the different forms of poverty we must attend to.

Ataguba, Ichoku and Fonta (2013) have found that some research indeed shows that there are multiple differences in people who are identified as poor. They found ten dimensions of poverty: consumption, housing, health, education, employment, employment quality, physical safety, empowerment, shame, and psychological well-being (p. 336). By looking at these multi-dimensions of poverty you see that they must all be considered in the definition of poverty and childhood poverty, as each one affects individuals differently. Ataguba, Ichoku and Fonta (2013) found that “depending on how poverty and deprivation are conceived of and measured, there are likely to be differences in the people defined as poor or deprived” (p.348).

**Opportunity Gap**

The ways in which we define poverty and childhood poverty can help us to better serve others or can hinder us in our work. In a school setting it is important to really comprehend the definition of childhood poverty and to fully understand the importance of all of the forms of poverty. Schneider and Castillo (2015) state, “the ways people define the causes of poverty are related to how they perceive and justify existing income inequality” (p. 263). They talk about poverty attributions or explanations people choose for the existence of poverty in a society (p. 264). Current research and debate is centered on cultural norms, perceptions, and beliefs about inequality (Schneider & Castillo, 2015, p. 264). Every culture has its own set of beliefs around
many things, including childhood poverty. These beliefs can help us to become advocates for children living in poverty.

We must have a critical lens to look through on what childhood poverty is, how we define poverty, the forms of poverty, and then start to create a place where we can all be advocates for children living in poverty. Lichter (1997) pointed out:

Childhood poverty impairs physical growth, cognitive development, and socioemotional functioning. Poor children are also more likely to be physically abused: indeed, effective parenting suffers in economically stressful environments. The incidence, duration and chronicity of childhood poverty also have large negative effects on children’s IQ, educational achievement, and later adult productivity, while increasing their adult welfare dependency. The implication is obvious: The effects of high rates of economic deprivation among today’s children may only be fully realized by tomorrow’s adults (p. 122).

The effects of living in poverty can be devastating. Lichter (1997) shows us that the trend of poverty saw substantial reductions during the 1960’s and the 1970’s but, started to rise again in the 1980’s and 1990’s (p. 123). Childhood poverty creates many barriers to learning for students and can often be the defining factor in a child’s life. Through the research of Lichter (1997) we see that childhood poverty has been on the rise. Those reasons have been identified as changes in family structure, changing patterns of employment and earnings, and changes in public assistance (p. 133). A greater number of students are living in high-risk, single parent families than in the past. Lichter (1997) shares that if we are to change childhood poverty we must address these reasons and possible solutions for these reasons.
When we start to talk about childhood poverty we also recognize the difference in society for today’s children. Children of today need to be technologically savvy and ready to take on the jobs of the future. Karabanow (2016) shared this with us:

There is a growing concern that within our emerging globalized political and economic environment, an ever-increasing number of people lack sufficient resources to hook into the rapid-paced movement of new technology and high finance will undoubtedly be left behind (p. 369).

Our fear with childhood poverty is that they will indeed be left behind in learning, technology, and socially. Karabanow (2016) suggests that if we take a look at the children in society it will tell us how well we are doing. When we dig further and take a look at not only childhood poverty, but homeless children, we see many of the same needs. When children are homeless or run away, Karabanow (2016) finds that they are running away from the horrors of their particular family setting: sexual abuse, physical abuse, neglect, divorce, separations, new siblings or parents, and general family dysfunction (p. 371). Childhood poverty forces us to look deeper and to really study the needs of the children living in poverty. Children of poverty need services in a timely, flexible and caring way to help them succeed.

Academic Development for Disadvantaged Children

Jeon et al. (2011) worked on predicting school readiness for low-income children with early-identified disability risks. The study analyzed school readiness at kindergarten entry for low-income children who also had disability risks identified. The results highlight the importance of early intervention for low-income children and especially those who have identified disability risk factors. Kainz and Vernon-Feagans (2007) were interested in the
Ecology of Early Reading Development for Children Living in Poverty. They spent time studying reading development from kindergarten to third grade for economically disadvantaged children. The model proposed that family characteristics would influence reading skills in kindergarten entry and the rate of their reading growth. There are supportive factors that make a difference in the predictability of reading development: health, language, family and classroom. They found that a disruption in any of these factors caused significant affects to children’s reading development, which tends to happen in impoverished and disadvantaged populations. There is a significant importance in the contexts in which children develop and they are connected to their reading outcomes and school readiness.

Fitzpatrick, McKinnon, Blair and Willoughby (2014) believe that executive function skills explain the readiness gap between advantaged and disadvantaged children. They found that executive function skills can help children hold information or instructions in classroom activities, focus, and resist distractions. Disadvantaged children lacked many of these skills that were deemed so significant for school readiness. Ziv and Sorongon (2011) showed that there is a relationship between social processing in preschool children and sociodemographic risk. This relationship was related to problem behavior in school. This study showed that the sociodemographic risk contributes to the development of bad behavior through a stressful household environment that has less parent involvement, higher levels of stress, and less desirable parental behaviors. These all connected to low levels of social skills development in preschool children. They believe there need to be social skills taught to children through practice and demonstration and these processes could target change through intervention with socially maladjusted children.

Meeting the Needs
Karabanow (2016) suggests, “One way in which to meet a population’s needs is to listen to what they request” (p. 378). “When basic needs are sufficiently met for the short term, and a sense of care, trust and respect is emerging between parties, children begin to perceive a positive community atmosphere” (Karabanow, 2016, p. 379). The needs of children must be met for learning to occur. We must break down these barriers to learning for students in all settings. Karabanow (2016) states, “In order for children to feel part of a community, to feel normalized and active citizens, they need to form positive relations with the outside world” (p. 380). Flores (2012) further explained:

There are many challenges to growing up as a child in America. In a country well governed, poverty is something to be ashamed of. More than 1 in 5 U.S children lives in poverty, equivalent to 16 million, and 1 in 4 U.S. children younger than 6 lives in poverty (p. 367).

Along with many challenges to growing up, some of the most significant have to do with the meeting of basic needs. Hunger, health care, child abuse and neglect, obesity, violence and bullying, dropouts, and mental health care issues are all significant factors to growing up well adjusted. “When you are hungry, you can’t think about anything else” (Flores, 2012, p. 367). Students in our school settings have to deal with lack of meeting basic needs on a daily basis. This causes disruption in their learning and creates holes or gaps in their learning. Flores (2016) suggests that we start another War on Poverty and try to eliminate childhood poverty. With his research and the research of the others noted above, we can start to gain some understanding of what poverty is, how to define poverty and childhood poverty, all of its forms, and how to become an advocate for students living in poverty.
Engagement in the School Setting

“If you wanted to create an education environment that was directly opposed to what the brain was good at doing, you probably would design something like a classroom” (Medina, 2014, p. 5). When we think about classrooms we think about students sitting in nice rows, listening to the lessons, raising their hands quietly, and absorbing the information from the teacher teaching. This kind of view of the classroom is not engaging for students. As Gregory and Kaufeldt (2015) recognize, “Engagement happens as the senses explore the environment until something grabs one’s attention” (p. 50). Students need to be engaged in the learning environment to maximize learning. Young brains are like sponges and need to be activated to absorb the learning taking place in the classroom. Gregory and Kaufeldt (2015) further showed us:

When children enthusiastically explore their environments, they are actively building their brains’ neural networks. Each encounter, every interaction, triggers their brains not only to make a new connection, but also to notice and record what happens into their working memories (p. 72).

When we talk about engagement we are trying to get the student to find learning in what Gregory and Kaufeldt (2015) call the learner’s sweet spot. This sweet spot is where the most learning takes place for students in the classroom. This place is reached when all the students’ needs are met, students feel safe to take risks, and student’s attention is drawn in by something intriguing. Gregory and Kaufeldt (2015) shared:
When students are at a crystallizing moment of learning, they experience a point where attention, high interest, positive feelings, and a connection to prior successes collide. This informally referred to as the “sweet spot” – that place where a combination of factors results in a maximum response for a given amount of effort (p. 131).

Helping a child get into a place of learning where they can be in their sweet spot is paramount for engagement. An engaged child is a learning child who grows in all areas of the classroom.

**Fitness and Health in the School Setting**

In Medina’s (2014) book he shares information about humans aging. Scientists found that one of the greatest predictors of long-term aging was the absence of a sedentary lifestyle (p. 23). He states, “The chief reason for the longer life is that exercise improves cardiovascular fitness, which in turn reduces the risk for diseases such as heart attacks and stroke (Medina, 2014, p. 23). Medina (2014) found that movement is a key factor in aging for humans, and he also found that movement is a key factor in children’s ability to stay on task and engage. Medina (2014) wrote:

Physically fit children identify visual stimuli much faster than sedentary ones. They appear to concentrate better. Brain-activation studies show that children and adolescents who are fit allocate more cognitive resources to a task and do so for longer periods of time (p. 27).

In our current schools, students attend classes anywhere from six to eight hours a day. At most K-12 schools this includes lunch, recess and/or break time, and passing times for older students. Classes are made up of the required standards such as: reading, writing, math, science, history, and music or health and fitness. In elementary school each state has a different
requirement of how many minutes of fitness or movement activities students are required to have, and not all high school students are required to even take a health and fitness class each year. Medina (2014) questions, “Because of the increased reliance on test scores for school survival, many districts across the nation are getting rid of physical education and recess. Given the powerful cognitive effects of physical activity, this makes no sense” (p. 32). Furthermore, Medina (2014) has some suggestions for schools to harness the effects of exercise: recess twice a day, and treadmills and bikes in classrooms (pp. 32-34). He believes it is worth trying something and finding out if it works. Medina (2014) makes us think, “The idea of integrating exercise into the workday or school day may sound foreign, but it’s not difficult” (p. 34). He believes exercise boosts brain power, and is needed in schools and workplaces. Medina (2014) reminds us of a few important things to remember about our very complex brains. Medina shared:

Our brains were built for walking- 12 miles a day. To improve your thinking skills, move.

Exercise gets blood to your brain, bringing it glucose for energy and oxygen to soak up the toxic electrons that are left over. It also stimulates the protein that keeps neurons connecting (p. 35).

Cardiorespiratory Fitness and Academic Achievement

When digging further, two pieces of research analyzed the connection between cardiorespiratory fitness and academic achievement. These studies found that there was a connection between cardiorespiratory fitness, and increased academic achievement. Van Dusen, Kelder, Kohl, Ranjit, and Perry (2011) studied all five components of fitness while Sardinha et al. (2015) concentrated on cardiorespiratory fitness. Van Dusen et al. (2011) found “All fitness
levels except body mass index (BMI) showed significant positive associations with academic performance after adjustment for socio-demographic covariates” (p. 733). These authors found a particular connection to cardiorespiratory fitness, core strength, and academic achievement. Sardinha et al. (2015) looked at cardiorespiratory fitness as well, and found that there was an association between cardiorespiratory fitness, and higher academic achievement in language. Observations were made that the students who spent time on cardiorespiratory fitness saw an increase in their level of academic achievement.

According to Sardinha et al. (2015), “These findings support the need to modify public health and educational policy to encourage schools and physical education teachers to work in order to improve children and adolescents’ physical fitness” (p. 842). Both Sardinha et al. (2015) and Van Dusen et al. (2011) found a positive connection to cardiorespiratory fitness levels, and increased academic achievement. Van Dusen et al. (2011) shared:

For physical and general education practitioners the potential impact of physical fitness on academic performance should be considered in curricular schedules and administrator incentives. Given our findings, if PE is intended to support academic achievement, it should emphasize cardiovascular fitness and strength over body composition. Finally, every effort should be made to sustain an effective PE curriculum during the key period of adolescence (p. 739).

**Physical Fitness, Academic Achievement and Socio-economic Status**

Coe, Peterson, Blair, Schutten and Peddie (2013) as well as de Greeff et al. (2014) both studied the association between physical fitness, academic achievement, and socio-economic
status and note the additional component of socio-economic status as it relates to physical fitness, and academic achievement. De Greeff et al. (2014) point out, “This suggests that the association between physical fitness and academics can also be influenced by socio-economic status” (p. 854). The authors found that participation in exercise leads to “morphological brain changes, which benefit academic performance” (de Greeff et al., 2014, p. 854). These studies found that there was a significant difference in the fitness levels of socio-economically disadvantaged children, and children without this disadvantage. The socio-economically disadvantaged population scored significantly lower in all areas of fitness as compared to those without a disadvantage. They also found that the socially disadvantaged population scored significantly lower in academic performance as well. Coe et al. (2013) shares, “In addition to physical fitness, socio-economic status (SES) has been linked to academic achievement in youth” (p. 500).

Coe et al. (2013) and de Greeff (2014) found an increase in academic achievement for both socially disadvantaged students as well as students without a disadvantage. All students grew in academic performance when physical activity was incorporated. Coe et al. (2013) points out, “Although overall academic scores were lower in SES groups, there was still a positive association between fitness and academic achievement for both SES groups” (p. 503).

**Increased Physical Activity and Classroom-based Activities**

Donnelly and Lambourne (2011), Carlson et al. (2008), and Lambourne et al. (2013) all found associations between increased physical activity in or out of the classroom, and increased academic performance and note the strengths of increased physical activity, and classroom-based activities on academic achievement. Lambourne et al. (2013) found that children that participated
in 40 minutes of exercise a day had significant improvements in math achievement. Lambourne et al. (2013) point out, “Public schools are a promising environment to target PA and aerobic fitness levels through both classroom-based activity and physical education classes” (p. 169). Carlson et al. (2008) connected to that learning by finding an association between time spent in physical education and academic achievement. Carlson et al. (2008) also found that “time spent in physical education did not harm academic achievement and that it may have a modest favorable effect on achievement” (p. 724). When physical activity increased, academic achievement increased. Carlson et al. (2008) urge us to think:

More time in physical education, therefore, may help students perform better academically. Physical education should be promoted for its many benefits, and fear of negatively affecting academic achievement does not seem to be a legitimate reason for reducing or eliminating programs in physical education (p. 726).

Carlson et al. (2008), Donnelley and Lambourne (2011), and Lambourne et al. (2013) connected their learning and found associations between increased physical activity, and increased academic achievement. Donnelley and Lambourne (2011) specifically connect to classroom-based activities for increased physical activity. Donnelley and Lambourne (2011) share, “The classroom may be the ideal setting to combine physical activity with academic instruction” (p. S38). Classroom activities of moderate fitness improved standardized test scores for students, and additional physical activity during the school day increased scores as well. Additionally Donnelly and Lambourne (2011) believe:

The classroom is where students spend the majority of their time and this provides a viable location for interventions designed to increase physical activity. Increased physical activity
activity has the potential to improve fitness and fatness, both of which impact academic achievement. Physically active academic lessons are cost effective, do not require additional teacher preparation time, are enjoyable for teacher and student, and result in improved academic learning (p. S40).

This research of Carlson et al. (2008), Donnelley and Lambourne (2011), and Lambourne et al. (2013) examined increased physical activity and classroom based-activities and the connection to academic achievement. All three research articles found a positive impact when physical activity was increased for students. When students engaged in activities in the classroom their measured test scores increased.

**Need for Physical Education in School**

Authors like Foley, MacDonald, and Breiman (2018), Trost and van de Mars (2010), Pate et al. (2006), and Katz et al. (2010) urge us to recognize the need for putting physical activity into the school day. Their research points to the importance of students being physically active and calls us to recognize this need. Trost and van de Mars (2010) point out, “School-based physical education programs engage students in regular physical activity and help them acquire skills and habits necessary to pursue an active lifestyle” (p. 60). Trost and van de Mars (2010) are not alone in their thinking and share that the research has limitations. They recognize a need for additional research, and in the small amounts of research out there, are concerned about the effects of lack of fitness on our at-risk populations, such as childhood poverty. Trost and van de Mars (2010) noted:
Perhaps most important, we know too little about the effect of in-school physical education on academic performance among students at highest risk for obesity, including low-income children and those from black, Latino, American Indian, and Pacific Islander backgrounds (p. 63).

Another set of authors, Pate et al. (2006), research and recommend promoting physical activity in children through leadership in schools. They find a need for increased physical activity in the school day not unlike the work on Trost and van de Mars (2010). Pate et al. (2006) stated:

Traditionally students have engaged in physical activity during recess breaks in the school day and by walking or riding bicycles to and from schools. However, as we move into the 21st century, alarming health trends are emerging, suggesting that schools need to renew and expand their role in providing and promoting physical activity for our nation’s young people (p. 1214).

Pate et al. (2006) researched all activity in schools: recess, intramurals, school sports, physical education classes, after school programs, and physical activity in the classroom (pp. 1215-1218). Through their research they found that there is still a need for increased activity in the school day. Pate et al. (2006) report that, “Recently, several programs have been designed to incorporate physical activity into the academic curriculum and allow students to be physically active during classroom instruction” (p. 1218).

Additionally, Katz et al. (2010) and Foley, MacDonald, and Breiman (2018) believe that when done right, physical education can help students in all aspects of their lives. Foley,
MacDonald, and Breiman (2018) share, “The physical activity during a lesson can contribute to the well-being, fitness, and improved academic behaviors” (p. 24). Foley, MacDonald, And Breiman (2018) urge leaders to know what quality PE looks like, work together to enable change, stick to the plan, and exercise control (pp. 25-27). Leaders must be the agents for change, hold others accountable, and make sure learning experiences in physical education are maximized. Katz et al. (2010) agree, they believe physical activity should be where it fits, in the school day. Katz et al. (2010) recognize, “Although the health benefits of physical activity for children are well documented, the average fitness levels in children in the United States have been declining” (p. 1).

Katz et al. (2010) studied one program, Activity Bursts in the Classroom (ABC) and found that the effects of the program on daily physical activity, fitness, and measures of health were beneficial. Katz et al. (2010) found, “We found that students in the intervention group improved significantly in physical fitness and in reduced use of ADHD and asthma medication compared with the control group” (p. 5). Their study found that physical activity was beneficial for students in the classroom and their learning, and also found no negative effect of implementation on regular core subjects. Katz et al. (2010) report, “This study demonstrates the feasibility of bursts of structured physical activity for elementary school students for 30 minutes or more of daily physical activity without reducing teaching time or requiring any special facilities” (p. 6).

**Discovery Learning and Educational Equity**

Discovery Learning is a way of learning through an inquiry-based approach. Students learn by discovering on their own and making their own meaning out of exploring. Svinicki
There is a great deal of research to support the idea that active learning is the most effective way to ensure thorough initial learning and long-term retention of materials as well as the development of attitudes (p. S4). Implementing classroom-based fitness activities into the classroom can be seen as a discovery-based learning process or an aid to helping students become active learners in the classroom. Discovery Learning takes us away from the traditional approaches to education. Marioara (2015) states, “Thus, modern society requires the school to assume a performative role. Hence, there is a requirement for contextualization, fitness and flexibility (p. 2343)."

When implementing fitness into the school day students are asked to be active participants in their learning. In classrooms where Discovery Learning is present Svinicki (1998) explains, “The learner is an active participant in the process of learning rather than an empty vessel to be filled by the instructor” (p. S5). The learning taking place in inquiry-based classrooms is more meaningful to the learner and helps students to become better problem solvers in their own worlds. Even with the change in education we are seeing today, we still struggle to implement strategies and new learning into classrooms, but there is movement to make these changes. Svinicki (1998) shared:

Although a large number of individual instructors still depend heavily on lecture as the primary strategy for teaching, more and more instructors and more and more classes are beginning to incorporate, in sometimes small, sometimes large ways, activities designed to involve the students in more of the learning. Rather than being passive recipients of large amounts of information, students are being asked to make their own connections between what they are learning, and what they have experienced in real life (p. S4).
In addition to Discovery Learning, we must also address Educational Equity in the classroom as we define the need for fitness in the school setting. Implementing classroom-based fitness activities into the school setting can be done through the lens of Discovery Learning. This implementation of activities for all students transcends race, gender, religion, culture, and allows all students to be active learners in their educational journey. School settings can be places where opportunities are provided for all, experiences are provided for all, and equitable education is provided to all. Castelli, Ragazzi and Crescentini (2012), explained:

The scholastic environment provides various interpretations of the concept: the concept is associated with access to school and to resources, to the quality and to the diffusion of knowledge, but it may also refer to the institutional responsibility of governments and of the school to compensate for the inequities that exist outside the scholastic environment, in such a way as to guarantee better opportunities for disadvantaged individuals or groups of individuals (p. 2244).

Providing an equitable education is paramount in developing students’ perspectives as stated by Seica and Sanches (2014). They believe that educational reforms are necessary and that students need to develop competitive knowledge while at the same time be ready to face social challenges in our global world (p. 2015). Saliceti (2015) further relates, “Therefore, it is essential that schools take a challenge and develop new dimensions for teaching and learning methods” (p. 1174). Leaders in the buildings can strive for educational equity for all students in the building and need to make equity a priority for all. Educational Equity in schools can be connected to Discovery Learning and the ability for school systems to provide an education where all students are of worth. Students discovering their own world, creating new pathways, and being active
learners through differentiated classroom instruction will create students who can find their place in society. Tannebergerova (2013) so eloquently reminded us of this:

One of the basic human rights is the right to an education. This inalienable fundamental right to which everyone is entitled is valid for both healthy persons, with a good social background, and for persons with disabilities, disadvantaged and from a worse socio-economic background. The government is obliged to provide such education which allows every person to maximize their potential and thus helps find the best possible place in society (p. 549).

**Challenges with Implementation**

Although we know how important physical fitness is for students, there are challenges in implementation of classroom-based fitness activities during the school day. Researchers such as Katz et al. (2010), Coe et al. (2013), de Greeff et al. (2014) and others listed in this literature review all studied the need for fitness in the school day, implementation of different interventions during the school day, and the effects of fitness interventions on students and their academic achievement. When looking through the lens of Discovery Learning in cooperation with Educational Equity, incorporating fitness in the school day seems vitally important. Time constraints, resistance to change, and lack of research in the field cause others to struggle to implement these recommended strategies.

Throughout this literature review authors have shown the need for fitness in the school setting, how increased fitness can help students in their learning and on-task behavior, and the effects of inquiry-based learning on the brain. The brain research of Medina (2014), Gregory and
Kaufeldt (2015), Jenson (1998) and others shows the importance of an active brain for student learning. With the increase in pressure on core academic test scores and the Common Core State Standards, teachers are feeling behind in their core teaching. This pressure has caused teachers to cut out or cut back on fitness activities and the research above shows a need to increase rather than decrease fitness in the school day. Van Dusen et al. (2011) remind us, “Yet schools incentives are oriented to the results of standardized academic testing, due in part to the requirements of the No Child Left Behind Act” (p. 733).

Additionally, this literature review explored the component of poverty, its definition and history, and childhood poverty. We must not forget that along with the factors present in implementation of classroom-based fitness activities and increased physical activity, students of poverty have many other factors in which a school system must address. Once a school system can explore poverty and how it effects its students, gains additional understanding, and finds the opportunity gap, then it must start to incorporate all factors for students and their learning. Flores (2012) urges school systems to understand poverty, childhood poverty, and to make a difference for children through meeting their basic needs. These barriers must be addressed along with increased engagement and fitness for students.

This literature review set out to examine whether increased fitness would be associated with increased academic learning. The authors of the research were able to take a different stance on what exactly about fitness might improve academic achievement. The studies incorporated increased physical education in the school day, classroom-based fitness activities, increased cardiorespiratory fitness, and the five components of fitness. In addition authors looked at brain research in relation to childhood development and how Discovery Learning connected to
Educational Equity in classrooms. Furthermore, authors addressed poverty and how childhood poverty is incorporated in the needs of students and their engagement in learning. Increased academic achievement was the theme throughout all the research, showing an association between physical fitness or activities, and the influence on academic achievement for all students including those from poverty.

Although each piece of research examined and analyzed different sets of data, they all show that increased physical fitness has an association to increased academic achievement. While one piece of research reports that the classroom is where the activities should be performed, another reports that increasing minutes in the physical education classroom will make the difference. Another set of studies connected socio-economic status to physical fitness, and academic achievement. These studies reported that all students are positively affected with increased physical fitness. Public schools have decreased physical activity over time, often due to the amount of academic testing and rigor that is being demanded of teachers.

**Conclusion**

This literature review shows positives in academic achievement across different subjects as measured by different tests or sets of produced outcomes. Some research went on to further show that there was an increase in cognition, classroom behavior, and overall fitness. Through a Discovery Learning process, brain research on childhood development, and increased fitness opportunities the researchers show an interaction to increased academic achievement. Carlson et al. (2008), stated:
Expanding physical education programs may increase the benefit in academic achievement as well as enhance other potential benefits, such as increasing physical activity levels, improving physical fitness, increasing knowledge about physical activity, and improving psychological health (p. 724).

The large amount of literature presented in this chapter shows that physical activity or movement for students in the school setting is of great importance to educators and their need to increase academic achievement for their students. In chapter three I lay out the methodology for this study, along with present additional information connecting the literature review to the need for this study at Moments Elementary School.
CHAPTER THREE
RESEARCH METHOD

Action research is a systemic approach to investigation that enables people to find effective solutions to problems they confront in their everyday lives. Unlike traditional experimental/scientific research that looks for generalizable explanations that might be applied to all contexts, action research focuses on specific situations and localized solutions (Stringer, 2007, p. 1).

An Action Research Informed Qualitative Case Study

Action research is a research method similar to school improvement planning. School systems are required by law to have school improvement plans that are developed yearly and approved by the school board. These school improvement plans are developed with school leadership teams and focus on goals to help improve education in the school setting for all students. In a school improvement plan school teams look at the data, spend time analyzing the data, and come up with goals for the school year. Action steps are put into place, and collaboration around those action steps happens throughout the school year. At the end of the year schools re-evaluate, look at the data, and look to put new goals and action steps into place for the next school year.

This school improvement planning connects to action research methodology. Stringer (2007) shares that action research is an interacting spiral (p. 9). In this spiral, you start with the look phase or gathering relevant information and describing the situation. In the next phase, the think phase, you explore and analyze the information and try to understand why things are the way they are. In the last phase, the act phase, you plan, implement and evaluate. This phase is where the interventions are put into place. You take a problem of practice that you discovered in
the look and think phases, and put something into place to try to solve that problem. The spiral then continues on spiraling and repeating itself while you work through problems of practices and interventions. Stinger (2007) points out, “In practice, therefore, action research can be a complex process” (p. 9). School settings are complex and collaborative and school teams use school improvement planning much like action research methodology to solve problems and continually evaluate the interventions being put into place to solve those problems.

Stringer (2007) states, “Action research is a collaborative approach to inquiry or investigation that provides people with the means to take systematic action to resolve specific problems (p. 8). When investigating classroom-based fitness activities in the school setting and their influence on students’ interactions with literacy, school improvement planning and action research methodology are the perfect ways to research the effectiveness of these interventions. Action research methodology is a good fit when studying educational practices because it aligns with the processes we currently use and allows teachers and teams to collaborate about the process, and monitor the effectiveness in real time. Stringer (2007) points out some positives to using action research, stating:

Action research is always enacted in accordance with an explicit set of social values. In modern, democratic social contexts, it is seen as a process of inquiry that has the following characteristics: it is democratic, enabling the participation of all people, it is equitable, acknowledging people’s equality of worth, it is liberating, providing freedom from oppressive, debilitating conditions, it is enhancing, enabling the expression of people’s full human potential (p. 11).

Action research helps researchers to study school settings by incorporating all stakeholders, obtaining buy-in from those stakeholders, and putting relevant and timely
interventions into place to help students learn and grow. Action research is weak in research methodology when a researcher is looking for a specific cause and effect, or is looking to provide information that can be shared across states or school districts. Uniquely, this weakness is the positive of using this methodology in a school setting. In a school setting we are trying to help the children in that particular school, not necessarily a larger population.

**Qualitative Methods in Action Research**

Along with action research a researcher will use qualitative methods to study a problem of practice. These methods fold into action research and allow the researcher to dig deeper into the place, the participants, the data, and the lived experiences of teachers and students. Creswell (2014) explains for us, “…qualitative methods rely on text and image data, have unique steps in data analysis, and draw on diverse designs” (p. 183). Qualitative research takes into account: the natural setting, researchers as a key instrument, multiple sources of data, inductive and deductive data analysis, participants’ meanings, emergent design, reflexivity, and holistic account (Creswell, 2014, pp. 185-186). These characteristics allow the researcher to discover the uniqueness of a situation, and offer up suggestions or strategies that may be of importance. Merriam and Tisdell (2016) further explaining qualitative methods, wrote:

> Rather than determining cause and effect, predicting, or describing the distribution of some attribute among a population, we might be interested in uncovering the meaning of a phenomenon for those involved. Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences (pp. 5-6).

Action research with qualitative methods relates to school settings and school improvement. The process of taking a team through the action research cycle, while studying the
participants, allows the team to learn about experiences of students, and teachers in the school classroom setting. Educational school settings are places where learning is taking place all the time, and qualitative methods allows us to capture those moments of learning. During the action research, qualitative methods were used throughout the research cycles allowing us to look at multiple points of data, and learn while experiences were happening.

Qualitative methods can have some disadvantages as well. If a researcher is looking to give an outcome of cause and effect for larger scale change, qualitative methods will not get you there. Qualitative methods have not always been accepted as research, and it has taken years for researchers to find the value of qualitative methods in study (Mabry, 2012). Qualitative methods can sometimes be described as the feeling part of research rather than the hard numbers of research. This weakness makes qualitative methods the perfect fit for educational settings, especially in specific individual school settings, as it allows the researcher/s to understand the lived experiences and how that plays out in their setting

**Research Site as Place**

Why choose this research site? What is this school place? What significance does this school place have on our lives? Why spend time researching this school site? Schmidt (2011) tells us:

Our lives, and those of our students, are filled with interaction with and in places. On any day, we spend time in many places—at home, work, shopping at a store, eating in restaurants, riding the bus, walking down the sidewalk, in cyberspace. We watch TV and movies that “take place” somewhere. The word “place” appears again and again in conjunction with our activities (p. 20).
I have to believe that school place is significant in every life. Our school setting is unique, as all school settings are, but to us it is very special. The students come to this place every single day, in fact, they spend more time awake in our school place then they do in their own homes. This place is safe, engaging, welcoming, and is a place of learning for students and staff. Ellis (2004) states, “I have often witnessed how the places of children’s everyday lives have limited their opportunities for nurturance, growth, and learning” (p. 23). This school place needs to be a place that does not limit our children, it needs to offer endless opportunities for the students whom pass through the doors, and through participatory action research studies the school can provide a place of learning and growing for all students.

Greenwood (2009), telling us about the importance of place, explained:

Places are pedagogical both because of their contexts shape our experiences of learning and becoming, and because our experiences of learning in turn contribute to place-making, place-changing, and place-leaving. Although place is often spoken of in the singular, places are best thought of in the plural, as our lives touch a great variety of interconnected places, each holding a variety of sometimes competing and conflicting stories” (p. 1).

Greenwood (2009) talks about place and how we are connected to it and it is connected to us. He believes that by being in places we are also helping to change, restructure and create those places. Our school struggles with place and places. Our students are coming from places we do not wish for them and they have to be stronger than the place that is raising them. They come from poverty, sadness, anger, and frustration with the systems around them. Greenwood (2009) reminds us about the past and its importance to students. He believes that to truly understand
where we are today we need to embrace the past and learn from the people of the past. By understanding their culture, their struggles, their lives, we can better prepare our students for their future. Greenwood (2009) shares, “Most conversations about schooling are silent about a deeper, emplaced and embodied past, and thus people speak mainly about school rather than education, living, and learning” (p. 3).

The students at Moments Elementary are directly affected by their place, their home place, their family place, and as educators we must create a place that shows them opportunities. From the curriculum we teach, to the language we use, to the interventions we provide, we must show them the opportunities available to them for their lives. Schmidt (2011) suggests, “Students’ abilities to recognize the complex and contested meaning of places, boundaries, and territories increase demand for teachers to be more attentive to the manners in which they engage place with students in the curriculum” (p. 33). We must empower teachers to learn about the past of our students, understand what makes them who they are, take the current curriculum and design it to work in the place. Ellis (2004) believes, “Place is the anchor for community and continuity, particularly for children whose mobility and access to psychological communities is more limited” (p. 25). Ellis argues that place defines us and though our place we learn patterns, expectations, and we start to belong to that place. It is in place where we form relationships and make meaning out of our world.

Ellis (2004) also believes that everyday life is curriculum. She sees that living is our curriculum and that by living we are learning. As educators, we can make living our curriculum, we can embody the curriculum with our students and learn from them while allowing them to make meaning for themselves. Ellis (2004) also talks about the opportunities afforded to students based on their places of living. Play is of the utmost importance for young developing children
and depending on the place children live in they are either given things to play with or children develop play things. She encourages educators to create places where we still play with the curriculum, we learn from the curriculum, and we help to make our own meaning out of our curriculum. Ellis (2004), stated:

Good places are a source of belonging, identity, and security but also include space for exploration and creative self-expression. Good places for children and youth also have a positive self-image, enable them to learn about the world, and integrate them into the larger community. Because students spend so much of their time in school, it is important to consider how classrooms and schools can be good places in these ways (pp. 33-34).

Place is so significant to our students and their learning and living. As educators, we must try to create a place that is nurturing, safe, playful, and engaging for all students regardless of the place they come from. Students’ experiences of place outside of school can help shape them in addition to the place provided at school. Places can shape us and provide us opportunities to grow and learn. At Moments Elementary we need to make it a priority to provide a place where all children can learn and grow. We must understand their past and their culture and community to help guide us in our curriculum and teaching. We can do this through participatory action research and qualitative methods, which will allow us a window into their experiences in our school setting.

**Participatory Action Research as a Chosen Method**

This place, Moments Elementary, is a place of learning and growing. Choosing an action research informed qualitative case study of a participatory action research team as the design of
this dissertation study fits directly into our place. We are constantly wanting to learn and grown, make our lessons more engaging, help more students become proficient, and provide opportunities for growth. Yearly, we spend time evaluating, creating, and designing our school improvement plan based on a problem of practice, and action research is designed in a similar way. This study required us as an action research team, to look and evaluate where we were, think about how we got here, and our place of the past, and act on those ideals by putting interventions into place to help students continue to grow. By evaluating the lived experiences of our students and staff, our team worked though the cycle of intervention and implementation with fidelity. This study matters to our students and our staff as it looked at engagement with classroom-based fitness activities and its connection to students’ interaction with literacy.

Method: Participatory Action Research

Figure 1. Picture of the action research cycle incorporating classroom-based fitness interventions, poverty, brain research, and theoretical frameworks.
Look and Think Phases

Participant Selection

This research study consists of primary subjects and secondary subjects. These subjects were chosen by using a purposeful sampling technique Mabry (2012) that helped to produce maximum information about the research question. The primary subjects were made up of students. The students are a critical case sample (which students need the most literacy intervention) of three classes of high-poverty students in first grade at my school, Moments Elementary. These three classes of high-poverty students need as much intervention and support as possible to help them to close the learning gap with which they come to our school. The three classes of high-poverty students in the first grade were chosen by greatest need as determined by their test scores. High-poverty students are defined in this study as those students who qualify for free or reduced lunch.

Primary participants were purposefully selected. The study’s purpose is to understand the experiences of high poverty first-grade students with classroom-based fitness activities and literacy. Participants were selected at Moments Elementary whom are first graders and in the secondary participants’ first grade classroom. Consent was sought and parents contacted by a phone call from the classroom teacher and then either an in-person meeting at the school or papers were sent home to be signed. The first grade teachers in the study obtained consent and assent for primary student participants in person at the students’ school. Primary participants were screened based on the following criteria: must be an enrolled Moments Elementary student, must be currently in the first grade in one of the three chosen secondary participants’ first grade classrooms.
The secondary participants are three volunteer first grade classroom teachers and have been critical in understanding current curriculum, understanding the testing procedures, and for follow-through in the action research study. Along with myself, they became the action research team participating in a full action research cycle: look, think, and act. The three teachers implemented the interventions in their classrooms and were part of the action research study team that met regularly to discuss how the interventions were progressing. The three teachers are first grade teachers at Moments Elementary whom have high poverty students in their classroom.

The secondary participants were voluntary. They had to be a first grade teacher at Moments elementary school and have high poverty students in their classroom to volunteer. Three secondary participants were selected and more than three volunteered, so random sampling will occurred. Secondary participants were approached first with an email and then with a follow up meeting with all first grade teachers at Moments Elementary. I, the researcher, obtained consent and assent for secondary teacher participants at the teachers’ school. For secondary teacher participants, I arranged a time to meet at the teachers’ school for them to review and sign forms. Secondary participants were chosen on a voluntary basis and were screened on the following criteria: must be a current first grade teacher, and must have students in their classroom identified as high poverty status per free and reduced lunch guidelines. The secondary participants were contacted through email first, and then asked to speak with myself, the researcher, if they were interested. All of the consent and assent forms used were approved by the Washington State IRB before they were used.

**Data Collection Methods**
Coghlan & Brannick (2005) speak to framing the action research project. They suggest using an opportunity mindset while doing your initial framing and using action research to look at issues that are key issues warranting attention. This study followed an action research design (Stringer, 2014). In this participatory action research informed qualitative case study design the action research team made up of myself and three volunteer first grade teachers, collected qualitative (QUAL) data. Stringer (2014) suggests gathering multiple forms of data in the look phase and specifically data that helps researchers understand stakeholders and their perception on the research question. Mabry (2012) reminds us that beyond documents and artifacts, observations, and interviews, we also need more, “QUAL researchers and evaluators must go beyond readily available data sources to seek out the marginalized, the silent, the remote, the powerless and to record and consider their perspectives and experiences” (p. 294). Documents were collected including previous test scores, and students’ free and reduced lunch status. Online documents were collected by researching the OSPI website and the school report card, along with test scores from throughout the current school year. Students were tested throughout the study as part of the implementation of pre and post research design. First grade students also produced artistic drawings as evidence of their interactions with the classroom-based fitness activities and interactions with literacy. Students produced drawings of how they felt doing reading in the classroom. Students also produced drawings of how they felt when doing the classroom-based fitness intervention. Lastly, students produced drawings about how they felt after doing the classroom-based fitness interventions. Agendas from teacher collaboration meetings were collected as well to provide insight as to how the teachers were interacting with the classroom-based fitness activities, and to understand how and when those activities were implemented.
Observations

Observations were used to gather evidence of the implementation of the classroom-based fitness interventions. Unstructured observations helped to provide a perspective of what the classroom looks like and how the students engaged, or not, with the lessons. As Mabry (2012) notes, “Unstructured observation notes are typically taken by hand, often hurriedly to keep up with the dynamic flow of events. Notes need to capture detail for analysis and for narrative reporting” (p. 301). In these observations I took notes using a laptop similar to the way I take notes while doing teacher observation, documenting everything I can about the classroom-based fitness intervention and literacy. These observations happened over time to create fuller understanding of the students, and the classroom-based fitness interventions along with their interactions with literacy. Unstructured observations were written into narratives for greater understanding.

Structured observations took place as well. Mabry (2012) makes this note about structured observations, “Structured observations typically involve the use of protocols or instruments that direct the observer to tally or record certain behaviors” (p. 302). These observations were used to record frequency of individual students’ engagement in classroom-based fitness activities, as well as interest level. Structured observations took place during teacher collaboration as well, providing insight as to how the teachers were interacting with the classroom-based fitness activities, whom was implementing them, how long they were being implemented, and teacher’s perspectives on how effective she thought the intervention was in her classroom.

Interviews
Interviews were conducted on each teacher participant whom has student participants in their classroom. Mabry (2012) tells us, “QUAL interviews tend to offer exceptional opportunities to reach deep understanding based on multiple perspectives of participants or stakeholders” (p. 307). Interview protocols were developed with 10-12 questions and were conducted at the teacher participants’ chosen time. These interviews will were conducted pre/post intervention and were face-to-face with each teacher. The data was recorded by transcribed notes and there was follow-up with the participant at the completion of the study. Interviews took place before we implemented the classroom-based fitness intervention and after the classroom-based fitness intervention was completed.

Testing Data

Lastly, I used tests in my data collection. Literacy tests are already given to all students in the first grade, and they were given pre/post classroom-based fitness interventions to all first grade students. Currently first graders are given two different literacy tests, Fastbridge online literacy assessment, and the Fountas and Pinnell reading assessment. The Fastbridge online literacy tests require students to read during an allotted time, and then to answer multiple choice questions. The Fountas and Pinnell reading assessment has students individually read to their classroom or reading teacher out loud, while the teacher takes notes on their accuracy, fluency, and comprehension. I used data from the fitness tests that are given to all students in the first grade as a measure of their level of fitness. This allowed me to see if there is a correlation between fitness level and their literacy scores.

For validity, I triangulated my data sources, making sure my samples were of equal size, and assured all data collected was from all students in the study. I included literacy test scores
along with drawings in addition to observation and interview data. Follow-up on my conclusions when scores or themes did not match was a process I followed for increased validity. Creswell (2014) suggests establishing validity of scores and discussing the validity of the qualitative findings (p. 225). The tests helped to communicate with broadest audiences in the accountability measures we are often held to.

**Act Phase**

**Data Analysis**

Data analysis began as soon as the action research team started to gather documents and artifacts, first observations had been conducted, and first interviews had taken place. As an action research team we met regularly to review the data, talk about the interventions, and analyze how things were going. We even had times we met informally in the hallway or other places to have quick discussion of how things were going. This action research cycle flowed in a similar way as when we work as grade level teams on school improvement planning. I conducted the first round of interviews before the classroom-based fitness interventions were put into place. Additionally, I partook in observations in each classroom the first week of implementation. Observations occurred frequently during the implementation, and interviews were conducted at the end of the study.

The final phase of the analysis was to collect any remaining data, make sure post interviews had taken place, and narrate all classroom observations. I looked for themes to emerge and patterns to form about the data. The data then began to be organized into categories and themes and a visual was created for deeper understanding. The themes were analyzed through the
discovery learning and educational equity framework lenses to create greater understanding of the lived experiences.

**Ethical, Sensitive, Confidentiality Issues**

This research was conducted following approval by Washington State University’s Institutional Review Board (IRB). This participatory action research informed qualitative case study design evaluated risks to students, parents, and teachers. I, the researcher, obtained IRB support while the D1 was being approved. All subjects filled out informed consent paperwork, and subjects that did not want to participate were allowed to exclude themselves. Subjects were given the right to withdraw at any point during any phase of this study. Throughout the duration of the research study implementation confidentiality was at the forefront of the project. All subjects were given pseudonyms, and all information regarding the participants printed in my dissertation is non-identifying. Data was kept on secured servers or password-protected devices, with hard copies of data maintained in locked file cabinets in a locked office.

I spent time making sure this research design did not make students, parents, or teachers feel uncomfortable, and that they did not feel singled out. By testing all first graders regardless of whether they are in the group of three to four classes of students being given the intervention, this allowed students to feel that they are all essentially the same. All first grade students in the three classes were able to participate in the drawings as well, as to not be left out. Once the drawings were finished the teacher, secondary participant, privately removed all drawings of students not participating in the study before turning them into me.

**Researcher Positionality**
My role is principal of Moments Elementary School in the School District A. While working on this dissertation I was also a superintendent intern and was a part of the superintendent’s executive team. My current role in the district allowed me the opportunity to work with decision makers at the district office and I had to be aware of my authority and its influence on participants and others in the district. I worked hard to minimize the effect my positionality may have had on the study.

I was very clear in the consent and assent forms that participation was completely voluntary and that information would be kept confidential. For purposes of reporting I made sure all participants were very involved in the study and process. Stinger (2014) suggests this:

Research participants need to ensure that all stakeholders are informed of ongoing developments in their investigations. These may take the form of informal conversations, in which people provide information about the activities in which they are engaged and developments that are emerging (p. 210).

I had teachers do the invitations with the primary participants to mitigate the risks of my positionality, as well as had them work with students on the forms. I believe I was able to keep any potential bias at a minimum due to allowing the teachers to be a large part of the study team. Teachers worked with me just like they always do during a normal school year, in groups, solving problems of practice, thus making the study feel like something we always do.

Conclusion

Chapter three allowed me to share my methodology for this participatory action research study team, my positionality, the setting of the study, participant selection, data collection, and
ethics of the study. This chapter outlined the study and the process that was followed in order to
study three first-grade classrooms at Moments Elementary School in School District A. In
chapter four I outline research findings of the study, and the themes that emerged while doing the
data analysis of the study. Chapter four will further examine details in each theme that emerged
during the study.
CHAPTER FOUR

ANALYSIS

As stated in chapter 1, this action research informed qualitative case study of a participatory action research team was developed to examine the effects of classroom-based fitness activities and their influence on high poverty student’s interactions with literacy. This study examined high-poverty students along with non-high poverty students in three first grade classrooms. This study explored student’s feelings about classroom-based fitness activities, teacher’s feelings about classroom-based fitness activities, and literacy connections. Data sources included face-to-face semi-structured interviews, observations, student drawings, and student literacy test scores. Through the data analysis process described in chapter three, I found that participatory action research teams, or grade level teams as we call them in elementary school settings, are constantly teaching, reviewing data on students, and modifying as they go. Through student drawings students were able to share their own voice about how they feel about literacy in the classroom, and the classroom-based fitness intervention in their classroom.

Analysis of the data revealed four overarching themes. The first overarching theme, engagement, examines first grade classrooms and engagement during literacy activities and classroom-based fitness activities. Sub-categories below this theme are: teacher’s thoughts on engagement, classroom observation data, and student drawings of engagement. The second overarching theme, movement, explores movement in first grade classrooms and its connection to student’s engagement, teacher thoughts on movement, classroom observations on movement, and student drawings after movement activities. The third overarching theme, movement influences all, investigates poverty students outcomes, non-poverty student outcomes, and the intersection of both socio-economic groups. Furthermore, this theme examines classroom
observations during movement activities and student drawings of their feelings during classroom-based fitness interventions. Teaming for learning, the fourth overarching theme, discusses the participatory action research team, or grade level team, and its uses for school learning. Additionally, this theme connects to engagement, equity, leadership, and discovery learning. During this analysis I will share thoughts from teachers, student outcome data, high poverty students and non-high poverty students feelings through drawings, and observations from the three classrooms. All names used in these discussions will be pseudonyms.

Engagement

Engagement is best understood as the interaction between attention and commitment. Students who are engaged pay attention and are committed because they find value in doing what the task or activity calls upon them to do…In other words, engaged students may learn things on which they place no particular personal value because they do value doing the tasks or participating in the activities that result in their learning of those things (Schlechty, 2005, p. 9).

Engagement rose to the top as one of the overarching themes of this study. Engagement was examined during this study through teacher’s interview thoughts, classroom observations, and student drawing samples of how they felt during and after activities. Below is highlighted the evidence gathered in connection to engagement for this study.

Teachers Thoughts

Schlechty (2005) tells us, “When students are engaged, it is because of the tasks and activities they are being encouraged to become involved with have inherent meaning and value for them” (p. 9). Three first grade classroom teachers at Moments Elementary School volunteered to be in this study. They all choose a different classroom-based fitness intervention
to put into place in their classroom during this study. All three teachers reported that when working with first grade students they have to be mindful of the time spent sitting and doing lessons. They all felt that through the years of their teaching careers they have tried to put into place breaks or small activities to help them re-focus, get out energy, and get back to work.

In particular, Beth, an eleven-year veteran, whom had only taught at Moments Elementary, shared some of her thinking about engagement in her classroom and why she has tried interventions for her students. Beth shared:

I’ve been using it for a few years, and I started using it just because I felt like sitting for a really long period of time, especially at the age of six and seven is really hard. Their stamina is not there (Beth, personal communication, June 20, 2019).

Beth also pointed out that each year brings a new set of students with a new set of needs that she must attend to. This year in particular Beth shared, “Especially in the beginning of the year when they are coming in so young and within a couple of minutes of me doing some kind of instruction, they tend to lose focus” (Beth, personal communication, June 20, 2019). Beth and her colleagues feel that lessons are designed for specific amounts of time, but when working with first grade students they must break up those lessons for students to be fully engaged in the learning. Beth noted that some of her kids struggle with engagement in reading, she shared “We have a few who deliberately disengage during literacy activities because they don’t have the stamina and struggle with the enjoyment of reading and writing (Beth, personal communication, May 6, 2019).

According to Schlechty (2005),
To say that a student is engaged means, first, that the task in which the student is involved commands the student’s attention, the student focuses his or her energy on completing the task at a level that will satisfy the requirements specified in the task (p. 8).

Engagement happens when students have the ability to focus in on the task and attend to the details of that task. Sally, another first grade teacher in this study, has been teaching for seven years at Moments Elementary as well. She has taught kindergarten and first grade at Moments Elementary and believes engagement is key to student learning. Sally shared, “I think that if kids sit too long, they start to get tired” (Sally, personal communication, May 6, 2019).

Mason, a first grade teacher also in the study, shared thoughts on engagement for students in her classroom as well. Mason, a veteran teacher, has taught for 15 years at two different elementary schools before coming to teach at Moments Elementary. When talking about why she uses different activities in the classroom for engagement she explained:

I started because these kids are so, they’ve gone through so much and they can’t handle stuff. And the more, longer I teach, the worse it gets. Kids throwing fits. Kids cannot handle stress. They don’t’ know how to handle not succeeding. They, they just freak out all the time and so I wanted a way to teach them how to calm down and teach them how to handle life and it worked (Mason, personal Communication, June 21, 2019).

Mason volunteered to be in the study because she believes that student learning is centered around engagement and time spent on task. Over her 15 years of teaching she has spent hours putting things into place to help elementary students to be more engaged in her classroom to further their learning. She reports that student engagement happens in her classroom when students are excited about the task and have the energy to put toward that task.

What Do You See
“To measure engagement, then, it is necessary first to measure attention and commitment. Students who are high in attention and high in commitment are engaged” (Schelchty, 2005, p. 8).

Classroom observations were done in all three first grade classrooms with a protocol to check for engagement. Observations were done during English Language Arts lessons (ELA), during classroom-based fitness interventions, and after classroom-based fitness interventions were implemented. The first two tables below show classroom observation data kept during reading lessons.

Table 1
*Beth’s classroom observation minutes of on task behavior over time during an ELA lesson.*

<table>
<thead>
<tr>
<th>Beth’s Classroom ELA lesson</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of lesson</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>5 minutes</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>10 minutes</td>
<td>16</td>
<td>12</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>15 minutes</td>
<td>16</td>
<td>14</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>20 minutes</td>
<td>16</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>25 minutes</td>
<td>16</td>
<td>11</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

In Beth’s classroom, referenced in Table 1, I noticed that the more student’s sat on the carpet for the lesson the less they were engaging in the lesson. Most of the students were able to attend for 10 minutes and after ten minutes some students started to do other things instead of engaging with the lesson.

Table 2.
*Mason’s classroom observation minutes of on task behavior over time during an ELA lesson.*

<table>
<thead>
<tr>
<th>Mason’s Classroom ELA Lesson</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of lesson</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>5 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>15 minutes</td>
<td>17</td>
<td>13</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>
In Mason’s classroom, as seen in Table 2 above, I explored how long the students were able to attend to the lesson as well. After 15 minutes the students in this classroom started doing other things then the task they had been assigned. I also noticed that in this classroom with teacher re-directs Mason was able to get some of the off-task students to return to their task and become engaged again. Interestingly, at 30 minutes, more students were on task and engaged then during the ten minutes previous.

During both of the reading lessons observed I discovered that not all students were able to stay on task the whole lesson, and in fact, the longer the lesson went on the more additional students became unengaged. One lesson showed students disengaging at approximately 10 minutes and in the other lesson students disengaged at 15 minutes into the lesson. As evidenced by the data, students were more likely to be engaged in the first 10-15 minutes of the lesson. I also noted that in Mason’s classroom she did a lot of re-directing of her students, and through this re-direct, as evidenced by the data figure, students became reengaged with the lesson.

**Drawings of Engagement**

It is one thing for a study to observe classrooms and show when students are engaged or not engaged in the learning, but to have students share their feelings about lessons and their engagement is so important. During this study students, were able to make drawings and share their thoughts about how they felt about ELA lessons, how they felt when doing the classroom-based fitness intervention, and how they felt after doing the classroom-based fitness intervention. Below are some drawings and thoughts from students about how they felt doing ELA lessons,
evidenced by: Figure 2, Figure 3, Figure 4, Figure 5, and Figure 6. The first drawing shown in Figure 2 is from Frances, a high poverty student, who shares she feels happy during her ELA lesson and the drawings that follow are all from non-high poverty students.
Figure 2. Frances’s drawing of how she feels during an ELA lesson.
Figure 3. Lois’s drawing about how she feels during an ELA lesson.
Figure 4. Stanley’s drawing of how he feels during an ELA lesson.
Figure 5. Doris’s drawing about how she feels during an ELA lesson.
Figure 6. Gerald’s drawing about how he feels during an ELA lesson.

In these five student drawings you can see that different students feel differently about ELA and reading lessons. Some students write in their drawing that they feel bored, that they feel tired, and three students share that they feel happy when they are reading and doing ELA lessons. As Schlechty (2005) reminds us, students are engaged when they think the task they have been given is worthy of their time and effort. As evidenced by two of the drawings above, Figure 3 and Figure 5, two students are not engaging when they are reading, they either find it boring or they are tired when reading. For first grade students, the ability to show through pictures, words,
and colors how they feel gives us insight to how they are engaging or not in the classroom. These drawings give us just a glimpse of what students think about ELA lessons in the classroom.

**Movement**

According to Medina (2014), “Essentially, exercise improves a whole host of abilities prized in the classroom and at work” (p. 24). Another overarching theme found in this study is movement. Movement has been studied for years in humans and the effects of movement have been documented. This theme is pronounced due to its connection to engagement. During the study of classroom-based fitness interventions, movement was a central theme. The study involved three first grade classrooms and their teachers as a participatory action research team, implementing three different classroom-based fitness activities in their classrooms, all incorporating movement.

This study explored the three first grade classroom teacher’s thoughts on their chosen intervention, observations after the interventions had taken place, and student drawings about how they felt after doing the classroom-based fitness interventions. Medina (2014) further shared:

Physically fit children identify visual stimuli much faster than sedentary ones. They appear to concentrate better. Brain-activation studies show that children and adolescents who are fit allocate more cognitive resources to a task and do so for longer periods of time (p. 27).

Movement in classrooms connects to student engagement and researchers like Medina (2005) have spent their life studying movement and its connection to human longevity, the brain, and learning.

**Movement connected to Engagement**
Moving helps re-oxygenate the blood and pump it to the brain. This biological process in itself is a wake-up call. Movement releases feel-good hormones, endorphins, and dopamine; it also lowers the levels of the stress hormones (cortisol and adrenaline). The combined effort reduces stress and helps give a sense of well-being and comfort (Gregory & Kaufeldt, 2015, p. 31).

**Teachers Thoughts**

During interviews with the three first grade teachers I was able to ask specific questions about their classroom-based intervention and explore their thoughts about implementation, the reasons why they were using the intervention, and their perceptions about the influence of the intervention on their students. All three teachers had the chance to walk me through what exactly they thought was beneficial or not for their students.

Beth, who also taught special education for five years, was implementing a classroom-based intervention called GoNoodle where students watch and mimic a dance or activity video with popular music and dance moves. This intervention lasts 10 minutes at the most and can be done at any time during the school day when the teacher feels it fits. This program gets kids up and moving, gets their heart rate up, and works their cardiovascular system. Beth shared with me that “Out of my 15 students, 14 of them are highly engaged and love participating in them” (Beth, personal communication, May 6, 2019). When asked what her perspective was on implementing GoNoodle in her classroom she shared, “I think it is a great piece. I think it kind of breaks up hardcore literacy or learning blocks for kids. It gives them a chance to get their bodies moving. I really enjoy it and they enjoy it” (Beth, personal communication, May 6, 2019).

When asked why she uses the GoNoodle intervention in her classroom she shared:
I use it because I feel like a lot of times we are asking little bodies to sit still for a really long time and that’s hard at this age level and they need a chance to get up and moving in order to come back and refocus on the learning aspect of being (Beth, personal communication, May 6, 2019).

Beth used the intervention typically, right before she hit a long academic content area, or as a break between morning meetings or their ELA block. Beth had done this intervention before in her classroom and chose to use it during this study to get more insight into the influence it had on her students. When I asked Beth if she saw a difference before and after using the intervention she stated that:

Yes, especially with my students who have issues focusing, they are able to move around during this time, be a little silly, and get their bodies moving and then they are able to come back and sit and participate in the instruction and focus on what they need to be at (Beth, personal communication, May 6, 2019).

Lastly I asked Beth in her perspective, was the classroom-based intervention effective and how. She shared with me:

Yes, the purpose behind it is to get kids a little bit of movement so that they’re able to focus on the next part of learning and so I feel like it is effective in that they’re able to move and then they come down to the carpet ready to participate in an appropriate way and learn (Beth, personal communication, May 6, 2019).

Beth found success in her classroom-based fitness intervention for students in her classroom and shared that about 90% of the students really enjoyed doing the intervention. She plans to continue to use it in her classroom in the future.
Another classroom studied was Sally’s classroom. Sally has been teaching for seven years in kindergarten and first grade and implemented a classroom-based fitness intervention called Stand Up Kids. Sally implemented this intervention every day at the beginning of the study but, found herself struggling to continue it daily as the last week of school was filled with activities. The Stand Up Kids activities are a video series of exercises, how to do the exercises, and a few games that go along with them. For example, one video just teaches the students to do squats and has them do two to five minutes of squats. Sally shared that students were excited and that, “The students were very eager. They would actually beg for more” (Sally, personal communication, June 20, 2019). She noticed that there was only one student who didn’t feel like it was something he wanted to do and he was allowed to just stand and move however he wanted.

Sally shared her perspective on the intervention with me, stating:

My perspective is that it is important to be able to get kids moving, and at least to break up the in between, transition. Okay, and then for them to do it right before the reading activity like we would do. I think it kind of like gave them a chance to be ready for learning because they moved and had fun (Sally, personal communication, June 20, 2019).

Sally did not see a difference before and after the intervention for students but noticed this, “It surprised me how fast they were able to transition from a movement activity into basically silent reading, because I didn’t expect it to go smoothly” (Sally, personal communication, June 20, 2019). Sally believed the classroom-based fitness intervention to be very effective and anticipates using it in the future for students.
Similarly, Mason found her classroom-based fitness intervention to be effective for her students during this study. Mason, who has been teaching for 15 years, just got certified this year to be a children’s Yoga instructor. She implemented Yoga in connection with mindfulness in her classroom for the study. Every Friday Mason implemented a full half hour of Yoga into the classroom day, along with small Yoga and Yoga Mindfulness lessons throughout the week. When Mason first implemented Yoga she received some resistance on the part of her students, but reported that:

First time I had three kids who were like, no way not, just going to sit. But it was funny because after that I started introducing new poses and I would tell them that this was more challenging and then everybody would do it. So right now if I do a yoga flow, everybody participates and some get really excited about it (Mason, Personal communication, May 6, 2019).

Mason was also able to incorporate learning from the classroom into her yoga. She wrote her yoga flows about each of the continents the students were learning in social studies and students were able to connect that information to their in classroom learning when doing yoga. When I spoke with Mason about the effectiveness of the classroom-based fitness intervention she had so much to say and proclaimed it:

I find them very worthwhile and I have found that especially the breathing techniques have helped specific children in my room. I have one little guy who’s got huge anxiety about all sorts of things. Just switching from one thing to the next, he gets anxious. He’ll be visibly shaking because he’s so nervous about it. But now that he’s learned how to breathe, I’ll say that to him. Remember our breathing, you know, remember our thinking and we are safe and we are ok and he will calm down and then he’ll be okay with it. So
that’s been huge for me. And even my other little critter who throws big fits, if I can get him to stop, get his attention and get him to breathe, he calms down, and he will do that. And he also loves, I printed off a bunch of yoga moves and put them in a book, his favorite ones, and so sometimes if he’s getting a little crazy and can’t handle being in class, I have him come to the back of the room and work through the book and do all the poses. And that has been very effective at avoiding tantrums because he likes it (Mason, personal communication, May 6, 2019).

Mason found that parts of her intervention made a very large impact on one specific boy. Doing the intervention allowed him to learn to cope and to stay in the classroom without having to be removed from the activity. She also found that it decreased his tantrums which connected to him engaging more in the classroom. What she observed in this little boy made an impact on her and her teaching.

**What Do You See**

Classroom observations were conducted after implementation of the classroom-based fitness interventions to check for engagement. The same protocol was used to keep track of how many students were engaged in learning and for how long. The teachers’ reports above shared that some of the teachers see a difference before and after the classroom-based fitness interventions. As noted by Gregory and Kaufeldt (2015), “Even short opportunities to play can increase the brain’s dopamine production. Playing a game, engaging in a mild competition, and having a little fun can help the brain get ready for more serious learning activities” (p. 137). Below are some figures of the amount of time students are engaged in activities after a classroom-based fitness intervention had occurred in the classroom.
I observed Sally teach a reading lesson after she had the students do the classroom-based fitness intervention of Stand Up kids. The figure below shows engagement after the intervention.

Table 3
_Sally’s classroom observation minutes of on task behavior after a movement activity._

<table>
<thead>
<tr>
<th>Sally’s Classroom</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELA Lesson after</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stand Up Kids</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start of lesson</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>5 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>15 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>20 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

After 20 minutes in Sally’s classroom, seen in Table 3, all students were still engaged in the lesson, none were considered off-task.

In Beth’s classroom I observed her teach an ELA lesson right after doing a series of GoNoodle videos as her classroom-based fitness intervention. Below, in Table 4, shows the results of engagement in her classroom after the intervention occurred.

Table 4.
_Beth’s classroom observation minutes of on task behavior after a movement activity._

<table>
<thead>
<tr>
<th>Beth’s Classroom</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELA Lesson after</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GoNoodle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start of lesson</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>5 minutes</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>10 minutes</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>15 minutes</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>20 minutes</td>
<td>16</td>
<td>16</td>
<td>9</td>
<td>7</td>
</tr>
</tbody>
</table>

Similar to Sally’s classroom, referenced in Table 3, after 20 minutes all students were still engaged in the lesson and no student was considered off task.
Both lessons only lasted 20 minutes in length. Although only two classroom lessons were observed after doing classroom-fitness interventions the data shows that in these classrooms after students did a classroom-based fitness intervention they were able to stay engaged for 20 minutes. As evidenced by the anecdotal notes, students asked questions during this ELA time, worked with partners during this ELA time, or were silent reading during this ELA time. Sally reported that after doing Stand Up Kids classroom-based fitness intervention her students could silent read for longer than they could without doing the intervention.

**Drawings after Movement**

First grade students in this study had the chance to share their feelings about how they feel after doing classroom-based fitness interventions through drawings. According to Siegel and Bryson (2012), “Research has shown that bodily movement directly affects brain chemistry. So, when one of your children has lost touch with his upstairs brain, a powerful way to help him regain balance is to have him move his body” (p. 57). Students in the study were subjected to classroom-based fitness interventions involving movement. Below students share their feelings after they have participated in the activities. These first two drawings, evidenced in Figure 7 and Figure 8, show two non-high poverty students, Elanor and Albert, feeling tired and sleepy, while Figure 9, Lois, shows she feels ready to learn.
Figure 7. Albert’s drawing about how he feels after doing a movement activity.
Figure 8. Elanor’s drawing about how she feels after doing a movement activity.

After the hollow rock
I feel good but I
feel sleepy.
Figure 9. Lois’s drawing about how she feels after doing a movement activity.
Gerald and Gladys, both non-high poverty students, share that they feel calm and happy in Figure 10 and Figure 11.

Figure 10. Gladys’s drawing about how she feels after doing a movement activity.
Figure 11. Gerald’s drawing about how he feels after doing a movement activity.

The last three drawings shared are from Phyllis, Irene, and Frances. They all share that they feel happy and calm after doing the classroom-based fitness intervention as referenced in Figure 12, Figure 13, and Figure 14.
Figure 12. Phyllis’s drawing about how she feels after doing a movement activity.
Figure 13. Irene’s drawing about how she feels after doing a movement activity.
Figure 14. Frances’s drawing about how she feels after doing a movement activity.
Student voice in this study comes out through drawings for first grade students. As evidenced above you can see that different students feel differently after they have participated in the classroom-based fitness interventions. Some share feeling tired, some share feeling ready to learn, and others share feeling calm and happy. Student drawings share some insight into how students are interacting with the classroom-based fitness interventions and how it connects to their learning in the classroom. The ecology of the classroom, or the environment we create in our classrooms, connects to student’s engagement and learning. This ecology is evidenced by the drawings above. Students are able to share how they feel about activities and let their voices be heard.

**Movement Influences All**

This case study of a participatory action research team asks: *To what extent, if any, do classroom-based fitness activities influence interactions with literacy for high poverty students in my school?* The overall purpose of this study is to contribute to the literature regarding how classroom-based fitness activities influence high poverty students’ interactions with literacy and engagement. More specifically, the purpose is to better understand the experiences of first grade students and first grade high poverty students with classroom-based fitness activities, and how those experiences influence their engagement with reading and writing. Why these kids? What are they bringing to the table? These kids matter and they need to be understood through a district lens. Poverty students at Moments Elementary are underrepresented at the district level. They need to be studied so that we can better serve them in their schooling district-wide.

This study incorporates high poverty student’s outcomes, non-high poverty student outcomes, and the intersection of both socioeconomic groups. Some evidence became clear as I
separated out the data between high poverty and non-high poverty students. Baines (2014) reminds us that about schooling for all students, sharing:

For students, school is a place intended to help develop such abilities, fostering the experiences necessary to pursue their goals, expand their access to future opportunities, and succeed in the real world. At the same time, school itself is also a context where there is a range of what is possible for students, depending on their past histories, relations with others, and whether they meet the expectations of a school culture (p. 35).

Movement influences all regardless of socio-economic status, but in particular this study explored first grade students at Moments Elementary. While exploring the data of both groups of students, the results found shed light on what is happening for first grade students at Moments Elementary.

What Do You See

Beth, Sally, and Mason all have students in their classrooms whom are labeled high poverty as well as students whom are not. This label comes from parents filling out a free and reduced lunch form at the school to qualify for free lunch and breakfast. Between the three classrooms there are 50 students, of which 30 have volunteered and chosen to be in the study. Of the studied students 20 out of 30, or 67% of the students are labeled as high poverty, which is 10% lower than our whole school percentage of free and reduced lunch students at 77%. Each classroom breakdown is shown below in Table 5, provided.

Table 5. *Number of students in each teacher’s classroom and their socio-economic status.*

<table>
<thead>
<tr>
<th></th>
<th>Students in Study</th>
<th>Boys</th>
<th>Girls</th>
<th>High Poverty</th>
<th>Non-high Poverty</th>
<th>Free and Reduced Lunch Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth</td>
<td>8</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>63%</td>
</tr>
</tbody>
</table>
Classroom observations were completed in first grade classrooms during the implementation of the classroom-based fitness interventions. In Sally’s classroom the classroom-based fitness intervention observed was the Stand Up Kids video series. This lesson lasted 15 minutes for students and went through a series of three videos, with kids able to give choice in the video they wanted to do next. Below is a figure of the engagement charted during this intervention.

Table 6
*Sally’s classroom observation minutes of on task behavior during a classroom-based fitness intervention.*

<table>
<thead>
<tr>
<th>Sally’s Stand Up Kids Lesson</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of lesson</td>
<td>17</td>
<td>17</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>5 minutes</td>
<td>17</td>
<td>17</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>10 minutes</td>
<td>17</td>
<td>17</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>15 minutes</td>
<td>17</td>
<td>17</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>

In this observation, shown above in Table 6, all students stayed on task during the whole classroom-based fitness intervention time for 15 minutes. The data did not show a difference between high poverty and non-high poverty students and their interaction with the intervention. All students were engaged during the activity.

Observations were done in Mason’s classroom as well. Two different observations were done over a period of two weeks. Both observations are evidenced below. Lesson one was a yoga and mindfulness lesson that lasted 15 minutes for students.
Table 7
Mason’s classroom observation minutes of on task behavior during a classroom-based fitness intervention.

<table>
<thead>
<tr>
<th>Mason’s Yoga Mindfulness Lesson</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of lesson</td>
<td>16</td>
<td>16</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>5 minutes</td>
<td>16</td>
<td>16</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>10 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>15 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

Similar to Sally’s observed lesson, referenced in Table 6 and Table 7, in this lesson all students were engaged the during the whole 15 minutes. The evidence also did not show a difference between high poverty and non-high poverty students and their engagement in the lesson. Additionally, an observation was done in Mason’s classroom while doing a yoga lesson. This lesson lasted 25 minutes and took place in the art room where students were able to lay floor mats on the ground. Below is Table 8 showing engagement with the lesson.

Table 8
Mason’s classroom observation minutes of on task behavior during a classroom-based fitness intervention.

<table>
<thead>
<tr>
<th>Mason's Yoga Lesson</th>
<th>Number of Students</th>
<th>Number of students on task</th>
<th>Boys on task</th>
<th>Girls on task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of lesson</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>5 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>10 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>15 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>20 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>25 minutes</td>
<td>17</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
</tbody>
</table>

After observing a Stand Up Kids lesson, Yoga Mindfulness lesson, and a Yoga Lesson the evidence shows that all students engaged during the whole lesson. It did not matter if they were high poverty students or non-high poverty students, they were engaged. This data would tell us that movement in the classroom influences all students. The question the study wanted to explore
was does movement influence students’ interactions with literacy. To investigate that particular piece documents were pulled to look at student growth in literacy as a reference along with the teacher’s thoughts and classroom observations.

**Academic Growth in Connection to Movement and Engagement**

Beth’s classroom participated in the classroom-based fitness intervention of GoNoodle video series. Beth shared that she used this intervention between really long blocks of teaching time to get kids up and moving. These interventions lasted approximately 10-15 minutes daily in the classroom. When looking at the eight students in the study in Beth’s classroom five were high poverty and three were non-high poverty. Doris, Frank, and Lois were labeled as non-high poverty students and all three of them grew on their report card expectations for literacy, and their Fastbridge literacy scores. While Doris only grew in one out of ten on her report card, she was up two points on her Fastbridge literacy score. In relation, Frank and Lois grew two and three out of ten on their report card expectation for literacy and grew up to 11 points on their Fastbridge literacy scores. All three students grew while they participated in the study.

The data collected about the high poverty students in the study in Beth’s classroom looks a bit different. Two students, Harold and Frances, both grew on their Fountas and Pinnell reading scores as well as their Fastbridge literacy scores. Shirley had no growth on either of her reading tests, while Edward and Dorothy went down in their Fastbridge literacy scores and report card expectations for literacy. The high poverty students in Beth’s classroom did not show the same kind of growth that the non-high poverty students showed during the duration of the study on their literacy tests and report card expectations for literacy. Every student in the study in Beth’s classroom was meeting the expectations in Health and Fitness report card expectations.
The data presented in Sally’s classroom was different than that of Beth’s classroom data. Sally implemented a classroom-based fitness intervention of Stand Up Kids video series where students watch exercise videos, learn how to do the exercises appropriately, and follow them. This intervention was implemented for 10-15 minutes a day and always right before reading and writing time in the classroom. Sally also had eight students in the study with six of them being labeled as high poverty. Interestingly, every single student in the study grew in their report card expectations for literacy and on their Fastbridge literacy scores.

Albert and Elanor, non-high poverty students, grew up to two on their report card expectations for literacy and up to 32 points on their reading intervention scores. Similarly, all six of the high poverty students in Sally’s classroom, Clarence, Ruby, Arthur, Walter, Irene, and Florence, grew up to three on their report card expectations for literacy, and up to 25 points on their Fastbridge literacy scores. A difference was not found between high poverty and non-high poverty students in their report card expectations and Fastbridge literacy scores in Sally’s classroom. All eight students in Sally’s classroom were meeting report card expectations for health and fitness for the duration of the study.

Lastly, data was examined for Mason’s classroom. Mason implemented a classroom-based fitness intervention of Yoga and Yoga with Mindfulness. Yoga lessons happened every Friday for 25-30 minutes and Yoga with Mindfulness lessons happened daily for 10-15 minutes in the classroom. In Mason’s classroom 14 students participated in the study, with nine of them being labeled as high poverty. Of the five non-high poverty students only three grew on the Fastbridge literacy scores: Alfred, Stanley, and Gerald. Ernest had no growth and Gladys went down one point, but she also had four points of growth on her report card expectations for literacy; one of the highest in the study.
Nine students in the study were labeled high poverty and three of them grew less than 10 points on the Fastbridge literacy scores: Herbert, Melvin, and Phyllis. Five students grew on their report card expectations for literacy and their Fastbridge literacy scores: Thelma, Edna, Lucille, Bernard, and Ethel, up to 21 points. Every student in the study in Mason’s classroom was meeting the expectations in Health and Fitness report card expectations except one, Ernest, whom was at approaching expectations. The evidence showed no connection to high poverty or non-high poverty students and their test scores. Some grew, some did not, and some went down in their scores over the course of the study in Mason’s classroom.

**Drawings of Movement**

The three classrooms studied had the chance to allow students to share their feelings about how they felt while doing the classroom-based interventions: GoNoodle, Stand Up Kids, Yoga, and Yoga with Mindfulness. Gregory and Kaufeldt (2015) share with us, “Rather than just learning factoids and try to “cover content” or comprehend a reading passage, students learn how to reflect, analyze, organize, and evaluate. These experiences help make students’ thinking visible” (p. 102). Making students’ thinking visible is exactly what students did in this study by sharing drawings about their feelings. Below are drawings from high poverty and non-high poverty students showing how they feel while doing their chosen classroom-based fitness intervention. The first three drawings are from high poverty students: Frances, Bernard, and Irene. These drawings can be seen below in Figure 15, Figure 16, and Figure 17.
Figure 15. Frances’s drawing showing how she feels while doing a classroom-based fitness intervention.
Figure 16. Bernard’s drawing showing how he feels while doing a classroom-based fitness intervention.
Figure 17. Irene’s drawing showing how she feels while doing a classroom-based fitness intervention.
Frances, Bernard, and Irene all share through drawings that they feel calm, happy, and like the interventions because they make them strong. The results of their drawings are positive in nature. The next two drawings are from non-high poverty students and display their feelings about their classroom-based fitness intervention. Albert, as shown in Figure 18, draws a picture of him and his classmates doing a classroom-based fitness intervention and he uses the word fun to explain how he feels. In Figure 19, Gerald, draws a picture of him sitting in a chair doing some mindfulness and he reports he feels relaxed.
Figure 18. Albert’s drawing showing how he feels while doing a classroom-based fitness intervention.
Figure 19. Gerald’s drawing showing how he feels while doing a classroom-based fitness intervention.

The two drawings above show that Gerald and Albert feel good, think it is fun, and feel relaxed while doing the classroom-based fitness intervention. Furthermore, two more additional drawings show students feeling happy in side and good because they can move. These drawings are shown below in Figure 20 and Figure 21.
Figure 20. Showing how a student feels while doing a classroom-based fitness intervention.
Figure 21. Showing how a student feels while doing a classroom-based fitness intervention.

The student’s ability to share their feelings give insight into what students feel about the classroom-based fitness interventions, giving the study student voice. All of the drawings depicted show students feel happy, calm, relaxed, and a positiveness about how they feel while doing the classroom-based fitness intervention.

**Teaming for Learning**

The final overarching theme that was discovered from the study was teamwork. This study explored a participatory action research team, three first grade classroom teachers, and their implementation of classroom-based fitness interventions in their classrooms. The three teachers are already part of a grade level team of six first grade teachers whom work together frequently. In particular, the first grade team works together on Thursday mornings in a building
improvement planning cycle, much like the action research cycle of look, think, and act.

Additionally, the three first grade classroom teachers whom volunteered to be in the study met as a team to discuss the interventions in their classroom and their thoughts about those interventions along with myself as a team member.

Teaming

Professional development is at the forefront of leadership in the school systems and systems are constantly trying to find more time for adult learning. Senge, Scharmer, Jaworski & Flowers (2004) remind us, “Children feel the difference when the adults are thriving and well supported in their work” (p. 13). Adult learning is just as important as children’s learning, and leaders can have a huge impact on school settings for students, staff, and their outcomes.

One of the largest barriers in school systems is the time to reflect, process, and plan. The adult learning taking place right now centers on effective instruction in the classroom, student engagement, educating the whole child, equity, and student growth. In this study the adult learning connected to student drawings, classroom observations, and time spent as a participatory action research team to analyze and process.

Drago-Severson (2009) speaks to adult development and leadership. She believes in four pillar practices of a learning oriented model. Drago-Severson (2009) shares, “...teaming, providing adults with leadership roles, engaging in collegial inquiry, and mentoring. As pillars support a roof, these mutually reinforcing, broad forms of adult collaboration are supportive of and challenging to adults at different levels” (pp. 4-5). She suggests that these four pillars will help guide leaders to increase adult leaning and grow together. As a participatory action research team the four of us worked together to use discovery learning while implementing classroom-based fitness interventions. Discovery learning happens when students and teachers can explore
Mentorship

Rowley (1999) and Clark (2001) studied the work of mentors, what it is to be a good mentor, and the best practices of mentors. Socially just leaders must be mentors to those who they work with, including students, parents, staff, and the community. Rowley (1999) found six essential qualities of a good mentor. The good mentor is, “committed to the role of mentoring, accepting of the beginning teacher, skilled at providing instructional support, effective in different interpersonal contexts, a model of a continuous learner, and communicates hope and optimism” (pp. 20-22). These qualities he believes must be present when any leader decides to mentor another. Through these six qualities, mentorship can be effective in increasing effective instruction in the classroom, student engagement, educating the whole child, equity, and student growth.

This participatory action research team was led by myself, the principal and researcher. Being a part of the team allowed me as a leader to work in a mentorship role with my three first grade teachers. During our normal building improvement processes I am able to mentor teachers while they look, think, and act on the data around them. This mentorship allows me to work with relationships, share thoughts and ideas, and connect to student learning in a way I am normally unable to. Rowley (1999) states “Good mentor teachers capitalize on the opportunities to affirm the human potential of their mentees” (p. 22). By affirming the potential of the staff you work with you are helping them to see what they can achieve in their practices and in their ability to help all students learn and succeed.
A protocol of questions was created for the formal team meetings which helped guide our conversations, and audio recording was taken to document the meetings. During our formal team meetings and our informal conversations over the course of the study I was able to collaborate with the three first grade teachers, listen to their thoughts and process what was happening in their classrooms.

During team meeting number one all three teachers were able to reflect on the beginning of the implementation of the classroom-based fitness interventions. Beth reported, “My students have verbally expressed, I like doing GoNoodle because I can move around and then come back and I’m ready to learn and I’m not so wiggly in my seat” (Beth, personal communication, May 13, 2019). She was able to discuss in further detail why she thought students liked doing the intervention with her colleagues. Additionally, Mason shared her thoughts on Yoga and Yoga with Mindfulness with the group:

Well, with the mindfulness, the yoga and the mindfulness, they get better as it goes. So with the yoga they’re getting more skilled and they all participate. Even my reluctant ones will do most of the moves with us. And then the mindfulness, I’ve noticed that the longer we do it, the better they’re getting. It is actually being still, because it’s only four to five minutes tops. But at the beginning it was like pulling teeth for some of them to just be still for a few minutes and now we can all sit pretty well still without fidgeting and moving and getting up and yea, so that’s nice (Mason, personal communication, May 13, 2019).

After Mason shared this piece about the Yoga and Yoga with Mindfulness the team was able to talk more about what exactly she was seeing and how she was chunking it out for students to learn. Through the mentorship of the participatory action research study the team was able to
gain more insight into each other’s classroom and the interventions being put into place. I heard team members say things like maybe next year I’ll try what you are doing with my students.

Clark (2001) also found that, “Mentoring offers personal and often professional rewards to the teacher mentors. Mentoring enhances opportunities within the teaching profession, allowing for leadership development and increased job satisfaction” (p. 3). He found that mentorship helped the mentor and the mentee, increased school wide leadership, and helped with building and sustaining a culture of equity for all. During team meeting number two team members were again able to share their thoughts, think about what was happening in their classrooms, and analyze what they were seeing with each other. At this meeting Beth shared with the team:

Well, depending on the day we are using it for a least ten minutes. We typically do an eight to 10 minute intervention in the morning and then we do a second one in the afternoon that’s usually five to 10 minutes…students I have noticed are definitely actively participating with the exception of one out of the 16 who chooses just to stand and kind of move instead (Beth, personal communication, May 28, 2019).

Beth also noted, “They seem to be settling down much quicker when coming back down from the GoNoodle activity and are more attentive in what is going on being presented” (Beth, personal communication, May 28, 2019). Sally then connected to Beth’s learning and shared that she was seeing the same thing with her students. Sally said they were doing well with the intervention and shared, “They really enjoy it. Surprisingly well because what we do is we do the activity and then we do IDR and my fear was that they wouldn’t settle down, but they actually do that” (Sally, personal communication, May 28, 2019).
Mason then started to share about Yoga and Yoga with Mindfulness and connected with her colleagues on a few things she was seeing in the classroom. She too felt that students were engaging with the lessons and that the students enjoyed doing the classroom-based fitness interventions. Mason was able to share an additional piece she was incorporating in her lessons with the group:

They participate, they have fun, and I started something new, kind of to turn it into more of a GLAD lesson. The last two times I have done it and I was really happy about that, where I gave them pictures of what we were going to do next. I used to talk about it and post them on the board so they knew the order, but then I decided to make it more interactive and I gave them pictures next to their mat of what we were going to talk about…and so I have done that twice and they love it And there’s zero interruptions and they get all excited when they get to go up (Mason, personal communication, May 28, 2019).

Mentorship can help leaders to be transformational. We should all strive to be that kind of leader, and show transformational leadership in our school settings. Transformational leadership can open up new pathways for personal growth as well as student growth. Looking through a lens of transformational leadership you can see how these changes could foster growth and start to transform the culture in a school setting. Through mentorship work, teachers will feel empowered to change practice, build their teammates practices, and start to transform their own teaching practices for an equitable education for all students.

**Conclusion**

This chapter explored the overarching themes that emerged throughout the analysis of the data found in this action research informed qualitative case study of a participatory action
research team. Data from classroom observations, team meetings, student outcomes on literacy and health and fitness assessments, teacher thoughts gained through face to face interviews, and student drawings of their feelings were analyzed. Four overarching themes emerged in this study: engagement, movement, movement influences all, and teaming for learning.

The first theme, engagement, explored teacher’s thoughts on engagement, classroom observation data, and drawings of engagement during literacy lessons from students. The second theme, movement, analyzed movement connected to engagement, teacher’s thoughts on movement, classroom observation data, and student drawings of how they felt after movement happened in the form of classroom-based fitness interventions. Movement influences all, the third theme, incorporated classroom observation data, academic growth in connection to engagement and movement, and student drawings of how they felt while doing classroom-based fitness interventions. Lastly, the fourth theme that emerged, teamwork and learning, investigated teaming and mentorship. Chapter five will share the implications, conclusions, and personal reflections on the study.
CHAPTER FIVE

CONCLUSIONS, IMPLICATIONS, AND REFLECTIONS

The purpose of this action research informed qualitative case study of a participatory action research team was to examine the effects of classroom-based fitness activities and their influence on high poverty student’s interactions with literacy. This study examined high-poverty students along with non-high poverty students in three first grade classrooms. This study explored student’s feelings about classroom-based fitness activities, teacher’s feelings about classroom-based fitness activities, and literacy connections. I used face-to-face semi-structured interviews, observations, student drawings, and student literacy test scores to gather evidence about the research questions.

Analysis of the qualitative data revealed four overarching themes. The first overarching theme, engagement, examined first grade classrooms and engagement during literacy activities and classroom-based fitness activities. Additional concepts in this theme were: teacher’s thoughts on engagement, classroom observation data, and student drawings of engagement. The second overarching theme, movement, explored movement in first grade classrooms and its connection to student’s engagement, teacher thoughts on movement, classroom observations on movement, and student drawings after movement activities. The third overarching theme, movement influences all, investigated poverty student’s outcomes, non-poverty student outcomes, and the intersection of both socio-economic groups. Furthermore, this theme examined classroom observations during movement activities and student drawings of their feelings during classroom-based fitness interventions. Teaming for learning, the fourth overarching theme, discussed the participatory action research team, or grade level team and its uses for school
learning. Additionally, this theme connected to engagement, equity, leadership, and discovery learning.

In this chapter I will present the conclusions of the study based on the four themes that emerged. Additionally, I will discuss implications for state and local policy, further research, and best educational practice. Lastly, I will share my personal reflections of the research study on my own practice.

Conclusions

Research question: To what extent, if any, do classroom-based fitness activities influence interactions with literacy for high poverty students in my school?

How do we measure effectiveness? Is this possible? How do we make sense of what we learned? How do we share what we have learned? All these questions ask us to evaluate the effectiveness of this study. Effectiveness of this study is hard to define, but I believe effectiveness is when we come out of this study with something to share. The findings in this study are worthy of sharing with others. When doing qualitative (QUAL) studies, the goal as shared by Mabry (2012) is:

…QUAL researchers and evaluators share a view of social phenomena as dynamic composites of many participants’ or stakeholders’ perceptions and experiences, strongly influenced by the contexts in which their experiences occur. Seeking an insider’s rather than an outsider’s understanding, QUAL researchers and evaluators share a commitment to staying on site long enough to appreciate and document multiple perspectives, contexts, circumstances, and experiences…Engagement in the field is necessary to recognize the patterns of behavior, themes and variations, nuances, and subtleties,
conditionality’s and complications, and articulated and in articulable meanings that enable deep understanding (p. 290).

This study was effective for our participatory action research team because, through the action research cycle we collected documents and artifacts, spent time in classrooms observing, worked as a research study team, interviewed teachers, and developed a deep understanding of the classroom-based fitness interventions. When we connected this research to the views of the participants through drawings about literacy, interactions with literacy, and engagement with literacy, we produced some findings to share.

**Engagement**

The study asked the question does movement in the classroom influence student’s interactions with literacy. More specifically, does first graders participation in classroom-based fitness activities influence their interactions with reading and writing, and is there a difference between high poverty and non-high poverty students. The heart of the study revolves around engagement. Are students engaged while reading and writing and for how long? Are students engaged during classroom-based fitness activities and for how long? Is there a difference between engagement in high poverty and non-high poverty students? This study directly asked those questions of first grade students at Moments Elementary.

The findings share these points about engagement in first grade classrooms at Moments Elementary. First, students engage in literacy lessons for 10-15 minutes and then start to become off task. Additionally, students engage in classroom-based fitness lessons for the duration of the lesson, up to 25 minutes without becoming dis-engaged. Lastly, students engage in literacy lessons after a classroom-based fitness intervention has been implemented 10-15 minutes longer
than when they do not participate in a classroom-based fitness intervention. These findings suggest that for the three first grade classrooms studied, student engagement went up when they were either participating in a classroom-based fitness intervention or immediately after they had participated in that intervention.

Previous to this study, there were many studies done on engagement of students, it has been a global topic for years. Many studies have asked how to engage students, how to keep students engaged, and how to make that engagement longer. This study is unique because it works with first grade students directly in the classroom and does not try to solve the engagement problem anywhere else. The findings of this qualitative case study can contribute to the research by providing specific information about engagement and first grade high poverty and non-high poverty students.

Movement

The case study incorporated three classroom teachers implementing classroom-based fitness activities in their classrooms. These classroom-based fitness activities were movement activities incorporated into classrooms. The study wanted to know about student’s movement, how they felt about movement, and their interactions with movement. During the study, evidence showed that most students enjoyed the movement activities with the exception of a few, and that during all three classroom-based fitness activities all students were participating. First grade students in the study showed their feelings through drawings about the classroom-based fitness activities and they shared that they felt happy, calm, and tired.

Evidence showed teachers reports of needing to get students moving, needing to break up lessons for students, and how students were before and after they did movement activities.
During observations of literacy we saw that students had a hard time not moving around after about 10-15 minutes of sitting and listening and were moving on their own even when they were not supposed to. For the students in this study their engagement went up during lessons when they were moving or right after a movement activity.

It is hard to find research on movement in elementary school classrooms. I was unable to find any qualitative case studies on first grade students and movement in the classroom. I did find studies on increased recess and health and fitness time, but nothing came forward on classroom-based fitness. The results of this qualitative case study of a participatory action research team will contribute to the literature about movement for students.

**Movement Influences All**

A large finding of this study is that movement influences all. The findings demonstrate that high poverty and non-high poverty students were all influenced by implementation of classroom-based fitness interventions in their day. The study found that there was no difference between number of minutes engaged in literacy lessons for high poverty and non-high poverty students. It also found that high poverty and non-high poverty students were engaged while doing classroom-based fitness interventions, and that the barriers to learning that high poverty students sometimes bring with them seemed to be non-existent as far as the movement activates implemented were concerned.

The literature review revealed important information about childhood poverty and how schools should go about educating students, and urged educators to do anything needed to keep them engaged. This study engaged high poverty students and non-high poverty students and the outcomes were the same for engagement. Findings also showed that some high poverty students
grew in their literacy scores while others did not. Similarly, the study found that some non-high poverty students grew in their literacy scores and others did not. Only one classroom had all students grow and that was the classroom that implemented Stand Up Kids. In that classroom the teacher implemented Stand Up Kids daily right before literacy time.

I was unable to find any research about engagement and the difference between high poverty and non-high poverty students with the same interventions provided. The results for this qualitative case study will contribute to the research by providing evidence and data about classroom-based fitness interventions and how the two socio-economic groups were influenced by the interventions. In this study the classroom-based fitness interventions influenced students of both socio-economic groups to be more engaged in the classroom.

**Teaming for Learning**

An action research informed qualitative case study of a participatory action research team incorporated a team dynamic. Although the study was about movement in the classroom and student engagement, it also touched on a team and that team’s process for their own learning. Building improvement teams, school leadership teams, and grade level teams are already established in most schools across the country, but this study took one team through an action research cycle and gave specific parameters about the process. As a team we were able to share what we were working on, how the classroom-based fitness interventions were going, and bounce ideas off of each other.

This study demonstrates that schools can be successful when they work in teams to increase their own learning and student learning. Additionally, analyzing student work in a study team helps to further guide the work in the classroom. To be able to share learnings with one
another is invaluable. I heard throughout our team meetings and in conversation the three teachers wanting to learn about what each one was doing and wanting to try their colleague’s intervention as well.

There has been a lot of research on teams, teaming, teaming for learning, and the power of team work. As evidenced by this study, having protocols and working consistently though student voice and student work can further a team in their learning cycle. The results of this qualitative case study will contribute to the literature by providing specific examples of the effectiveness of a team on student learning.

**Implications**

Educational Policy of the last 40 plus years has greatly influenced education for students in the classroom, specifically for the connection between fitness and academic achievement. Hundreds of policies have been enacted in our past that have shaped public education. Many have had a significant impact on fitness and academic achievement. In particular: Title IX, NCLB, and the Healthy Hunger-Free Kids Act in partnership with the Let’s Move initiative have impacted fitness and academic achievement for decades. These three policies combined together with many other policies produce years of decisions that have been made for the betterment of student learning. Student learning has been at the forefront of these policies, and through the years learning has increased for all students.

In 1972 women students were finally given rights to be active and move. In 2001 all students were to be educated and states were held accountable for educating all students, including disadvantaged students. A push for standards-based instruction was on the rise, creating accountability for students all over the nation. In 2010 our nation recognized the need to
have not only educated students, but healthy and fit educated students. The increase for healthy
food served in schools, and increased movement for students showed that the focus on individual
student needs was paramount for student learning.

There is a continual need for increased educational policy. Educational policy has shaped
and continues to shape how we provide free public education in America. Public education is a
gift that we cannot take for granted. Through policy we have, and will continue to address issues
of equity, accountability, and increased student learning. Educational policy exists to help guide
us in our work to create a nation of competent working individuals for the betterment of all.

Mitchell, Shipps, and Crowson (2018) urge us to keep pushing policy:

For much of our nation’s history, public education has been widely regarded as a rather
fundamental right—exemplified by state-level legislation requiring schooling up to a
certain age, by requiring communities to tax their property values in support of local
schools, by many judicial decisions over time demanding provisions of equity and
opportunity to learn, and by a widespread belief that education is essential to the
fulfillment of the American Dream (p. 336).

Good or bad, educational policy has shaped public education for years and will continue
to do so for years to come. It is how educators understand, implement, and learn from those
policies that will continue to guide us in our quest to educate all students. Even Jenson (1998)
knew how important policy and engaging the brain in learning was, as he stated:

We are on the verge of a revolution: the application of important new brain research to
teaching and learning. This revolution will change school start times, discipline policies,
assessment methods, teaching strategies, budget priorities, classroom environments, use
of technology, and even the way we think of the arts and physical education (p. 1).
As we continually push for policy related to classroom-based fitness activities and movement in the classrooms for increased engagement in learning, we must recognize the roadblocks to successful implementation. The policies of the past have shown us that although we are not there yet, we still need to push for policy that helps students in the classroom. Through the work of Katz et al. (2010), Jenson (1998), Gregory and Kaufeldt (2015), Siegel and Bryson (2012), and many more brain researchers we can see that the brain needs movement to engage in learning. As educators we need to push away road blocks and obstacles for successful implementation of classroom-based fitness activities and movement in the classroom and do what is backed by research and fundamentally right for student learning. Gregory and Kaufeldt (2015) shared this statement:

This can be particularly helpful for students who exhibit attention difficulties. Even short opportunities to play can increase the brain’s dopamine production. Playing a game, engaging in a mild competition, and having a little fun can help the brain get ready for more serious learning activities. Integrating more recess or free play as well as orchestrating organized games can change students’ brain Chemistry… (p. 137).

Implications for Children Experiencing Poverty

Poverty and especially childhood poverty is an issue we struggle with in the school setting. In terms of practice I believe many things are needed in our school and community settings. Teachers need more professional development around poverty, what it is, what it looks like, and what it is our students are dealing with. This professional development will help to increase staff knowledge around the issue of childhood poverty and will open up conversation about what we can do to help our students living in poverty.
In our school settings, we also need to do more outreach with the community. As shared in the literature review, we can only really help those in poverty when we truly see it through their eyes. We need to do more home visits and provide more opportunities for families to come to our buildings, helping to create more connections to the importance of education. This outreach will help to open our eyes to what childhood poverty really looks like, and to show us how many barriers our students are overcoming daily to get an education. By creating this bond with our communities, we will help to break down the barriers to learning for students.

We must also address resources; resources are out there and we are not doing a good enough job of accessing them for our students. We are just on the verge of the help that could be provided for families. Mental Health Counselors, Community in Schools, Food Banks, and Community Partners are just a few of the resources out there to help families. I am sure this is just the beginning of what resources are available in our communities. If we invest the time into researching the resources and reaching out to community partners I believe we can gain even more resources for students and their families.

Poverty, specifically childhood poverty, is not going away and in fact it is right in front of us. As leaders and educators we have the chance to make change and to make a difference in the lives of children living in poverty. We must open up our eyes and truly see these students and what their obstacles are. We must have a critical lens to look through on what poverty and childhood poverty is, how we define poverty, the forms of poverty, and then start to create a place where we can all be advocates for children living in poverty. This quote requires we put faces to poverty and by doing this we can start to make a difference. What did you do today to help make a change? When you think about poverty whose face do you see? Vidyasagar (2006) makes it very clear, stating:
The word ‘poverty’ is hollow until it is given a human face. It is a situation that places human beings in a state of hunger, sickness and powerlessness. Poverty is living 1 day at a time, with no access to basic daily needs of food, clean water, education and health care (p. 325).

**Policy**

On a global level the policies relate to the poverty line and not childhood poverty. The thresholds of poverty and income need to be reviewed. I believe there needs to be policy globally across the United States and specifically policy about childhood poverty. Requirements for us as a nation to address the children living in poverty need to be put into place. Children do not choose their zip code and I wish that we could do something on a larger level to help decrease childhood poverty. As far as the state level, I believe each state can and should wage a war on childhood poverty. They have the obligation to take a look at their funding and allocate more resources to help to decrease the number of children living in poverty.

On a school district level I see that policies are needed so that all children in the school system are afforded the same opportunities regardless of which school they attend. Some schools, dependent on poverty level, have more resources than others and some students are not able to access those opportunities due to the school they go to. I believe all children living in poverty deserve a fair chance to succeed and attain their dreams and goals.

**Leadership**

Leadership plays a key role in poverty and childhood poverty; social justice leadership. We need to have leaders in our school systems at all levels who are driven to make a difference in the lives of children living in poverty. Leaders who look through an equity lens to see all students are deserving of all opportunities. It starts with our state government advocating on a
national level for our children. It then goes to our superintendents and principals to lead their staff in change making for students. Through professional development, modeling and continued passion to make a difference, these socially just leaders will ignite staff to make a change. There are also the leaders at the ground level: the teachers, classified staff, parents, and students. All these stakeholders have a part in the development of children in our schools, and especially those living in poverty.

Gaining an even deeper understanding of what it is like to live in poverty will help staff to connect to students and families. Getting parents involved in working with their children and making their child’s education a priority is significant in the growth of their children. Creating that parent connection to school, and reaching out to parents in support of their students and their families will bridge the home to school gap. Students are the ones with the most to lose, and education is paramount in their lives if they are to break the cycle of poverty. Getting students hooked in early as stated in the literature above, creating schools they love to go to, fostering trust and respect, and modeling to them what kind of life they can make for themselves will all contribute to their success both in school and in life.

These changes are relevant and important in the lives of students living in poverty and we must work together to make these changes. We need leaders who are socially just, educated, passionate about helping all children learn, and who will do whatever it takes to help students succeed. We need leaders in government who will push these tough topics and try to create new policy and reform for childhood poverty. We need transformative leadership if we are going to change our thinking about students of poverty and how to help them to break the poverty cycle. Open, honest, strong leaders who are willing to step out of the norm and will not be satisfied with the status quo will do what is best for kids.
Equity

A culturally responsive school system needs to provide opportunities that are equitable for all and needs to recognize places where they may be oppressing and marginalizing groups. Smith (2012) believes that without a good education there will never be social justice. All students that enter our school systems should be given free, equitable, consistent, and engaging curriculum that will stretch their minds and help to create better citizens for our changing world. Regardless of their race, color, religion or background, all students deserve the right to learn, the right to an equitable education, and the right to make a better life for themselves.

Many school systems have started initiatives on equity. For example, just recently our school board, along with all of our principals, attended a simulation where attendees were transformed into our current families of poverty. These families had to survive for months on very little money, lack of child care, lack of transportation, CPS at their doorstep, and pressure to pay all their bills on time; as to not get evicted. In our district the working poor are struggling to survive and they are sending their children of different religions, race, color, sexual preference, and income levels to us every day. If we are to become culturally inclusive and responsive school systems that provide equity for all students, it is these kinds of activities that will impact us most. Our ability to put ourselves in their shoes, if only for a few moments, is paramount. As K-12 social justice leaders we must understand the needs of our whole community and provide supports to help students continue to learn and grow.

Implications for Further Research

There is a need for research and more literature around classroom-based fitness activities, and their influence on academic literacy achievement on high poverty students. This research design will provide more insight and clarity to understanding the association between classroom-
based fitness activities, academic achievement and students’ development of literacy skills of high-poverty students. This research will help to provide knowledge around a possible need for increased classroom-based physical fitness activities. I hope to provide further insight on the multiple perspectives for a fuller understanding of the impact of classroom-based physical fitness activities on literacy interactions of high-poverty students. Trost and van de Mars (2010) urge us to think:

Although the relationship between physical activity and academic performance requires more research, available evidence suggests that the academic mission of schools may be better served by providing more opportunities for physical activity. In fact, controlled studies strongly suggest that engaging in physical activity throughout the school day makes students more focused and ready to learn (p. 62).

**Reflections**

It feels like it has become harder and harder to get students to the standards continually set before them. As educators, we spend hours planning, analyzing data, going to professional development, and doing everything possible to become better at our craft. We want students to be successful, we want students to become everything they wish and more, and we want them to make lives for themselves to be contributing citizens in our ever changing world. During my 20 years in education I have been a part of multiple schools, multiple grade level teams, and multiple district wide initiatives put into place to try to increase student outcomes. I have never met an educator who didn’t do everything possible in their power to help all students succeed.

Even with the determination of educators to help students the statistics say that we are still not there, we are still not reaching every student, and we are still not producing students who are ready for a future that we do not know. As a classroom teacher and now administrator I
remember teaching very young students and struggling to get through lessons, struggling to keep
kids on task, and struggling to get students to be engaged. I found years ago that I needed to
provide breaks for students between lessons and I needed to get them moving. I noticed that right
after recess or health and fitness class was often the best learning time of the day. Many other
educators have noticed this same thing in their classroom and many teachers at Moments
Elementary have noticed this as well.

I have been principal at Moments Elementary for seven years now and at least half of my
teachers do something to break up the day for students. Most of them do active videos, jumping
jacks, movement in the classroom, or take students on a walk, but none of them have done a
specific activity for a specific amount of time consistently. This research study came about
because first grade teachers saw a need for more. They wanted to try something new, implement
it, and then explore what they learned. Being on the participatory action research team was a gift
I was given. Working with three first grade teachers who I think are wonderful teachers gave me
the insight and knowledge to participate in and evaluate this study.

This research caused me to think about how I can incorporate what I have learned on a
larger scale for students. My position as principal allows me to work with staff at all grade levels
and I will have the chance to share our study with all teachers in my building. I also have the
ability to share what we have learned on a district level with other principals and educational
leaders. Now that I have this knowledge about classroom-based fitness activities and their
influence on literacy with all students in the classroom I feel I am obligated to bring these issues
to light. I believe in what we learned during our study of high poverty and non-high poverty first
grade students at Moments Elementary and we hope to continue on with our learning in the
future for students and staff.
Facilitating Change

By providing equal opportunities and equitable outcomes for students, socially just leaders help create a definition of what is fair. Through this study I have learned that I must be a socially just leader. Theoharis and Haddix (2011) write about six principals that made a commitment to create more equitable schools. These principals found that this work started with their own emotions. They had to first take a look at themselves and what they believed was possible for their schools. They had to break down barriers to learning for all students and for their instruction. They worked one family at a time, used data in decision making, studied biases, and created environments where everything was on the table (p. 2). They found that a social justice leader is capable of making a difference to all through hard work, and fair just work. A social justice leader is transparent, open and honest, and creates environments where all are welcome. They admit their mistakes, learn from others, and spend time making connections about the importance of a good education. Education is the key to making a better life and allowing oneself the ability to achieve any and all dreams.

As a socially just leader I must be an ally for students as well. Edwards (2006) works through leaders as allies. Allies use self-reflection to get to a better place in their leadership. A social justice leader and ally can be a reflective practitioner, and can help to cultivate socially just environments. As I reflect on being an ally as a socially just leader I go back to Santamaria and Jean-Marie (2014) and their use of the theory of Applied Critical Leadership. They believe there are many characteristics of social justice leadership. A socially just leader makes teaching and learning the goal, doesn’t stay within the status quo, and has a school improvement focus. Furthermore, a socially just leader also inspires followers to transcend their own interests, enables others to step-up, engages in critical conversations, and makes sure they have
participation of all stakeholders. Social justice leaders spend their time addressing inequalities constantly by bringing them to light, talking about them, and creating systems that do not allow oppression and marginalization of groups in their environments. Singleton and Linton (2006) recognize an achievement gap that exists for students, they examine:

The significant achievement gap that exists between Black, Brown, and Indigenous students and their White and Some Asian counterparts became more publicized than ever due to the federal No Child Left Behind Act of 2001. This is indeed a racial achievement gap, because no variance in performance exists between students of different skin colors (Singleton & Linton, 2006, p. 10).

This achievement gap is found in all of our school settings for populations of students who have been marginalized. The nation-wide movement to close the achievement gap has left students feeling more left out, and isolated in their learning. As a socially just leader I must be an ally for students and their learning.

**Achievement Gap**

Through history we have continued to separate students of color, we have not provided schools of inclusive culture, and we as educators need to pay back this debt owed to all of our students. At our school our achievement gap does not relate to many of the schools around us; our gap is between high and low poverty students. We do not have a gap between students with different backgrounds; instead we see it between our high and low poverty students. I am in agreement with Ladson-Billings (1998) that it is still our highest priority to provide a free public education to all students, and our work as socially just K-12 leaders should be centered on what is best for all students. Race and culture, and high poverty and non-high poverty are all connected in this education debt. There should not be a gap in learning for students of difference
in color, race, religion, culture, or income. Howard (2016) and Ladson-Billings (1998) would urge us to understand the culture of each person, recognize how race and racism has played a role in each person’s life, and start to decrease the education debt we owe to each person we serve. We are nowhere close to closing our gap, or education debt, but we work daily to educate the whole child and to help each child reach their full potential.

**Conclusion**

With all the changes we have experienced in education, increasing adult learning around social justice leadership is so important. Supporting the adults in our school systems is and must be a priority, as it is for the children of our school systems. According to Drago-Severson (2009) “It must be a given that if schools are to adapt to current conditions, they need to be places where adults as well as children can grow, and we must change the ways in which we work, grow, and learn together” (p. 7). These changes in education are difficult and we as leaders must be mentors to our students and staff, help guide them through, and be present to help them with all their challenges. The work of a socially just K-12 leader can be rewarding and we as leaders need to appreciate what each of those people in our school systems brings to the table in terms of their own background knowledge and learning. Drago-Severson (2009) speaks to my heart. She believes in growth for all adults by using her model of the four pillars. Social justice leadership work incorporates all four pillars: “teaming, providing adults with leadership roles, engaging in collegial inquiry, and mentoring” (pp. 4-5).

Being a transformative leader is so important in our work in K-12 school systems. As leaders we must provide equal opportunities for all students for equitable outcomes. Students might require different interventions and supports to access those opportunities, and that is our job as a socially just school district. I look to the work of Baines (2014) and (UN) Learning
Disability and see the connections to students of childhood poverty. Baines talks about how even the simple day to day decisions we make need to be driven by our quest to create the conditions necessary to achieve goals and interests. We must expand possibilities for all and especially for students living in poverty in our school systems. I also look back to the work of Morris (2014) and the pushout of Black girls, and relate that to students living in poverty. Due to their backgrounds and experiences, or lack of, we often push them out of the educational systems that are there to help them. The Black girls in her book are often socially excluded due to their inability to behave, appearance, or lack of home support.

The goal as a socially just leader is to create an environment that Brown (2006) would be proud of. Her work talks about the art and science of helping others, and that is what K-12 socially just leaders should strive to do best, help others. We need to create transformative learning environments of experimental learning, self-reflection, and discourse for all students. We need school systems to be a place where all students feel safe and nurtured, where all students can take risks and be themselves, and receive the best possible whole child instruction we can provide.
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APPENDIX A

RESEARCH STUDY COVER LETTER-TEACHER RECRUITMENT

WASHINGTON STATE UNIVERSITY
Teaching and Learning, College of Education

Research Study Cover Letter

Study Title: Classroom-based physical fitness and academic literacy achievement

Researchers:

Principal Investigator: Dr. John Lupinacci, Professor, Teaching and Learning, Pullman Campus, Cleveland Hall 340, Pullman, WA 99164, 509-335-6838

Co-Investigator: Mandi Larson, M.Ed., Principal at Opportunity Elementary, Central Valley School District, Doctoral Student, WSU Spokane, 509-558-3552

You are being asked to take part in a research study carried out by Dr. Lupinacci and Mandi Larson. This form explains the research study and your part in it if you decide to join the study. Please read the form carefully, taking as much time as you need. Ask the researcher to explain anything you do not understand. Your permission is voluntary.

You can decide to not join the study. Whether you choose to join or not will not affect your treatment or evaluation in the school. If you join the study, you can change your mind later or quit at any time. You may refuse any question, test, or procedure. There will be no penalty or loss of services or benefits if you decide to not take part in the study or quit later. This study has been approved for human subject participation by the Washington State University Institutional Review Board.

This 8-10 week research study is being done to better understand how first grade students involvement in classroom-based fitness activities effects their interactions with literacy. You are being asked to take part because you are a first grade teacher at Opportunity Elementary.
Group notes will be taken as evidence to incorporate into the data collected around the action research study of classroom-based fitness activities. These notes are not about individual children, rather a group work focus as we research as a study team.

1. Noticing/Wonderings

2. GoNoodle Share out

3. Yoga Share out

4. Stand up Kids Share out

5. Next Steps

6. Next Meeting date/upcoming events
APPENDIX C

TEACHER INTERVIEW PROTOCOL NUMBER ONE

Research question: To what extent, if any, will classroom-based fitness activities influence interactions with literacy for high poverty students in my school?

Secondary Subjects Interview Protocol – First grade classroom teacher

Name_____________________________________ Date______________________________

Thanks again for taking the time to meet with me. I want to remind you again before we start that you may choose not to answer any question that you wish and are free to end the interview at any time. The purpose of this interview is to gain more insight into your thoughts and feelings about literacy and classroom-based fitness interventions. Is it ok with you if I audio record this interview? Do you have any questions before we get started?

1. How long have you been teaching? What schools? What grade do you teach?

2. Do you have a reading/ELA endorsement? Any additional professional development on teaching literacy?

3. Do your students like literacy? Are they engaged during your literacy lessons?

4. Do you have a health and fitness endorsement? Any additional professional development in health and fitness?

5. What fitness activities occur in your classroom? How often do these activities occur? How long do these activities last? How eager or reluctant are students with participation in fitness activities?
6. What is your perspective on the classroom-based intervention you are implementing in your classroom? Why do you use it? When do you use it?

7. Do you see a difference before and after students use the classroom-based intervention?

8. In your perspective is the classroom-based intervention effective? How?

9. Have you used other classroom-based fitness interventions before? What ones? Did you find they were effective?

10. Any other information you would like to share about fitness activities in the classroom?

Is there anything I haven't asked that you would like to add?

Thank you very much for your time and information. I will type up my interview notes and give them to you. I would very much appreciate it if you would make any additions or corrections to improve accuracy.
Research question: To what extent, if any, will classroom-based fitness activities influence interactions with literacy for high poverty students in my school?

Secondary Subjects Interview Protocol – First grade classroom teacher

Name____________________________________Date______________________________

Thanks again for taking the time to meet with me. I want to remind you again before we start that you may choose not to answer any question that you wish and are free to end the interview at any time. The purpose of this interview is to gain more insight into your thoughts and feelings about literacy and classroom-based fitness interventions. Is it ok with you if I audio record this interview? Do you have any questions before we get started?

1. What fitness activities occurred in your classroom? How often do these activities occur? How long do these activities last?

2. How eager or reluctant are students with participation in fitness activities?

3. At this point in time what is your perspective on the classroom-based intervention you implemented in your classroom?

4. Why did you use it? When did you use it?

5. Do you see a difference before and after students used the classroom-based intervention?

6. In your perspective was the classroom-based intervention effective? How?
7. Have you used other classroom-based fitness interventions before? What ones? Did you find they were effective?

8. How will you use what you learned while doing this study in your classroom in future?

9. Do you feel like others should know about this intervention?

10. How would you inform others about the study of a classroom-based intervention you used this year in your classroom?

11. Any other information you would like to share about fitness activities in the classroom?

Is there anything I haven’t asked that you would like to add?

Thank you very much for your time and information. I will type up my interview notes and give them to you. I would very much appreciate it if you would make any additions or corrections to improve accuracy.
Research Study Consent Form

Study Title: Classroom-based physical fitness and academic literacy achievement

Researchers:
Principal Investigator: Dr. John Lupinacci, Professor, Teaching and Learning, Pullman Campus, Cleveland Hall 340, Pullman, WA 99164, 509-335-6838
Co-Investigator: Mandi Larson, M.Ed., Principal at Opportunity Elementary, Central Valley School District, Doctoral Student, WSU Spokane, 509-558-3552

What you should know:
You are being asked to take part in a research study carried out by Dr. John Lupinacci, and Mandi Larson. This form explains the research study and your part in it if you decide to join the study. Please read the form carefully, taking as much time as you need. Ask the researcher to explain anything you do not understand. Your participation in the study is voluntary. You can decide not to join the study. If you join the study, you can change your mind later or quit at any time. You may refuse any question, test, or procedure. There will be no penalty or loss of services or benefits if you decide to not take part in the study or quit later. Whether you participate in this study or not will have no effect on your treatment or evaluation. This study has been approved for human subject participation by the Washington State University Institutional Review Board.

What is the purpose of this study?
This research study is being done to better understand how first grade students involvement in classroom-based fitness activities effects their interactions with literacy. You are being asked to take part because you are a first grade teacher at Opportunity Elementary. You cannot take part in this study if you are not a first grade teacher at Opportunity Elementary.

What will I be asked to do if I am in this study?
If you take part in the study, you will be asked to participate in three 30 minute interviews either during collaboration time on Thursday’s or during a non-staff meeting day. The interviewer will ask you about your own experience and views regarding
classroom-based fitness activities and literacy. The interviews will take place at the beginning, middle, and end of the study.

You may refuse to answer any question in the interview at any time. The interview will be audio-recorded through an offline digital recorder and transcribed by a service called temi.com. Attached is further information on temi.com. Audio recordings will be destroyed once the transcripts are completed and no later than by 6/30/19.

Also, class sessions will be observed 2-4 times throughout the 8-10 week process. Observations will last from 10-30 minutes. They will not be recorded, and will focus on the overall classroom environment and interactions with classroom-based fitness activities and literacy.

In addition, you will be asked to be a member of the action research study team. This team will meet every other week during a non-staff meeting time during the study cycle of 8-10 weeks to discuss progress of the implementation of the classroom-based fitness activities. In this action research team you will be asked to share the student drawings for the team to analyze.

You will also be asked to provide student literacy test scores and student drawings that are produced before, during, and after the classroom-based fitness activity.

Are there any benefits to me if I am in this study?

There is no direct benefit to you from being in this study. However, the study team plans to make suggestions and recommendations based on the feedback from this study.

Are there any risks to me if I am in this study?

Risks include invasion of privacy, or loss of confidentiality. Any loss of work time will be supported through additional volunteers and workers on staff at the school. Participants can choose the time and location of interviews. All information will be strictly confidential. Please see below for more information.

Will my information be kept private?

The data for this study will be kept confidential to the extent allowed by federal and state law. Under certain circumstances, information that identifies you may be released for internal and external reviews of this project.

Pseudonyms will be used throughout the study to protect participant confidentiality. Information gained from participants of this study will not be shared with other program staff or students. Data will be stored in a secure, locked location. The two researchers
for this study and a professional transcriptionist (interview audio-recordings only) will have access to study data.

Audio-recordings will be made of interview conversations. Transcripts will be made of these audio-recordings and pseudonyms will be used for all reports and analysis of documents. Individual information obtained about you through interviews and observations is confidential and will not be shared with parents or staff.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous. The data for this study will be kept for three years after the study is completed as required by Washington State University.

Are there any costs or payments for being in this study?

There will be no costs to you for taking part in this study.

Who can I talk to if I have questions?

If you have questions about this study or the information in this form, please contact the researcher, Mandi Larson, M.Ed., Principal, Opportunity Elementary, 509-558-3552. If you have questions about your rights as a research participant, or would like to report a concern or complaint about this study, please contact the Washington State University Institutional Review Board at (509) 335-7646, or e-mail irb@wsu.edu, or regular mail at: Neill 427, PO Box 643143, Pullman, WA 99164-3143.

What are my rights as a research study volunteer?

Your participation in this research study is completely voluntary. You may choose not to be a part of this study. There will be no penalty to you if you choose not to take part. You may choose not to answer specific questions or to stop participating at any time. You will be given a copy of the consent form for your records.

What does my signature on this consent form mean?

Your signature on this form means that:

- You understand the information given to you in this form
- You have been able to ask the researcher questions and state any concerns
- The researcher has responded to your questions and concerns
- You believe you understand the research study and the potential benefits and risks that are involved.
- You are giving your voluntary consent to take part in the study.
Statement of Consent

Yes, I agree
No, I disagree

The researcher may audio or video record me to aid with data analysis. The researcher will not share these recordings with anyone outside of the immediate study team.

Your signature documents your permission to take part in this research. You will be provided a copy of this signed document.

Signature of Participant ___________________________ Date __________________

Printed Name of Participant ___________________________

Signature of Person Obtaining Consent ___________________________ Date __________________

Printed Name of Person Obtaining Consent ___________________________
APPENDIX F

RESEARCH STUDY ASSENT FORM

WASHINGTON STATE UNIVERSITY
Teaching and Learning, College of Education

Research Study Assent Form
(For 6-10 year age range)

Study Title: Classroom-based physical fitness and academic literacy achievement

Researchers:
Principal Investigator: Dr. John Lupinacci, Professor, Teaching and Learning, Pullman Campus, Cleveland Hall 340, Pullman, WA 99164, 509-335-6838
Co-Investigator: Mandi Larson, M.Ed., Principal at Opportunity Elementary, Central Valley School District, Doctoral Student, WSU Spokane, 509-558-3552

My name is Mandi Larson. I am a student at Washington State University. I am inviting you to be in a research study about activities in the classroom, reading, and writing.

Your parent knows we are going to ask you to be in this research study, but you get to make the final choice. It is up to you. If you decide to be in the study, we will ask you to create drawings of your feelings about the activities in the classroom, reading, and writing. You will create these drawings during regular school time and it will take no more than 15 minutes of your classroom day. I will also visit your classroom a few times to watch you and your classmates participate in the activities, reading, and writing.

As the researcher I will be collecting data during the study. I will collect your reading and writing test scores, your drawings information about how your family pays for lunch. All of your information will be kept private and your name will be replaced with a fake name.

Taking part in this study will help us make decisions about the activities, reading, and writing, and could help make school better for all kids. There is a chance that the drawings you produce or your information might get shared.
Everything you draw and do will be private. We won’t tell your parents or anyone else what you draw or do while you are taking part in the study, unless we are concerned about your safety. When we tell other people about what we learned in the study, we won’t tell them your name or the name of anyone else who took part in the research study.

You don’t have to be in this study. It is up to you. You can say no now or you can change your mind later. No one will be upset if you change your mind.

You can ask us questions anytime and you can talk to your parent any time you want. We will give you a copy of this form that you can keep. Here is the name and phone number of someone you can talk to if you have questions about the study:
   Name Ms. Larson       Phone number 558-3552

Do you have any questions now that I can answer for you?

*************************************************************************************************************************************************

IF YOU WANT TO BE IN THE STUDY, SIGN OR PRINT YOUR NAME ON THE LINE BELOW:

__________________________________________________________________________  __________
Child name and signature  Date

Check which of the following applies

☐ The child is capable of reading and understanding the assent form and has signed above as documentation of assent to take part in this study.

☐ The child is not capable of reading the assent form, but the information was verbally explained to him/her. The child signed above as documentation of assent to take part in this study.

__________________________________________________________________________  __________
Signature of person obtaining assent  Date
APPENDIX G

RESEARCH STUDY PARENT PERMISSION FORM

WASHINGTON STATE UNIVERSITY
Teaching and Learning, College of Education

Research Study Parent or Legal Guardian Permission Form

Study Title: Classroom-based physical fitness and academic literacy achievement

Researchers:
Principal Investigator: Dr. John Lupinacci, Professor, Teaching and Learning, Pullman Campus, Cleveland Hall 340, Pullman, WA 99164, 509-335-6838
Co-Investigator: Mandi Larson, M.Ed., Principal at Opportunity Elementary, Central Valley School District, Doctoral Student, WSU Spokane, 509-558-3552

What you should know:
You are being asked to allow your child to take part in a research study carried out by Dr. Lupinacci and Mandi Larson. This form explains the research study and your child’s part in it if you decide to allow your child to join the study. Please read the form carefully, taking as much time as you need. Ask the researcher to explain anything you do not understand. Your permission to allow your child’s participation in the study is voluntary. You can decide not to allow your child to join the study. If your child joins the study, you or your child can change your mind later or allow your child to quit at any time. You or your child may refuse any question, test, or procedure. There will be no penalty or loss of services or benefits if you or your child decide to not take part in the study or quit later. This study has been approved for human subject participation by the Washington State University Institutional Review Board.

What is the purpose of this study?
This 8-10 week research study is being done to better understand how first grade students involvement in classroom-based fitness activities effects their interactions with literacy. You are being asked to allow your child to take part because they are a first grader at Opportunity Elementary. Your child cannot take part in this study if they are not a first grader at Opportunity Elementary.

What will my child be asked to do if he or she is in this study?
If your child takes part in the study, your child will be asked to:

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1. Produce drawings about classroom-based fitness activities and literacy. These drawings will occur in the classroom for every student and will take 15 minutes or less to produce. These activities will be for all children in the classroom and will take place during the regular classroom day.

2. Be observed. Your child’s classroom will be observed multiple times during the research study. The observations will not be recorded and will focus on the overall classroom environment and interactions with the classroom-based fitness intervention and literacy.

3. As the researcher I will be collecting data during the study. I will collect your child’s literacy test scores, your child’s drawings, classroom free and reduced lunch lists, and action research team agenda notes. All of your information will be kept confidential and your child’s name will be erased from the data.

Are there any benefits to me or my child if he or she is in this study?

There are no direct benefits to study participants. One potential benefit to your child for taking part in this study is their ability to share their experiences through drawings with adults. In addition, the study team plans to make suggestions and improvements based on the feedback from this study.

Are there any risks to my child if he or she is in this study?

Risks include loss of confidentiality, or invasion of privacy. All information will be strictly confidential. The information in this study is being confidentially coded and will be disseminated with a pseudonym and if published will be released in aggregate de-identified form.

Will my child’s information be kept private?

The data for this study will be kept confidential to the extent allowed by federal and state law. Under certain circumstances, information that identifies your child may be released for internal and external reviews of this project. Pseudonyms will be used throughout the study to protect student confidentiality. Information gained from participants of this study will not be shared with other program staff, parents, or students. Data will be stored in a secure, locked location. The two researchers for this study and the WSU Institutional Review Board will have access to study data.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain confidentially coded. The data for this study will be kept for three years after the study is completed as required by Washington State University. No information about your child will be shared with you.

Are there any costs or payments for being in this study?
There will be no costs to you or your child for taking part in this study.

You and your child will not receive money or any other form of compensation for taking part in this study.

**Who can I talk to if I have questions?**

If you have questions about this study or the information in this form, please contact the researcher, Mandi Larson, M.Ed., Principal, Opportunity Elementary, 509-558-3552. If you have questions about your child’s rights as a research participant, or would like to report a concern or complaint about this study, please contact the Washington State University Institutional Review Board at (509) 335-7646, or e-mail irb@wsu.edu, or regular mail at: Neill 427, PO Box 643143, Pullman, WA 99164-3143.

**What are my child’s rights as a research study volunteer?**

Your child’s participation in this research study is completely voluntary. You or your child may choose not to be a part of this study. There will be no penalty to you or your child if you withdraw permission or your child chooses not to take part. Your child may choose not to answer specific questions or to stop participating at any time. You will be given a copy of the permission form for your records.

**What does my signature on this permission form mean?**

Your signature on this form means that:
- You understand the information given to you in this form
- You have been able to ask the researcher questions and state any concerns
- The researcher has responded to your questions and concerns
- You believe you understand the research study and the potential benefits and risks that are involved.
- You are giving your voluntary permission for your child to take part in the study.

**Statement of Permission**

Your signature documents your permission for your child to take part in this research. You will be provided a copy of this signed document.

_______________________________________________      __________________
Signature of Parent or Legal Guardian                                        Date

_______________________________________________
Printed Name of Parent or Legal Guardian
Signature of Other Parent or Legal Guardian       Date

Printed Name of Other Parent or Legal Guardian

Signature of Person Obtaining Permission       Date

Printed Name of Person Obtaining Permission
APPENDIX H

RESEARCH STUDY VERBAL PHONE SCRIPT

WASHINGTON STATE UNIVERSITY
Teaching and Learning, College of Education

Verbal Consent Script

Study Title: Classroom-based physical fitness and academic literacy achievement

Researchers:
Principal Investigator: Dr. John Lupinacci, Professor, Teaching and Learning, Pullman Campus, Cleveland Hall 340, Pullman, WA 99164, 509-335-6838
Co-Investigator: Mandi Larson, M.Ed., Principal at Opportunity Elementary, Central Valley School District, Doctoral Student, WSU Spokane, 509-558-3552

Verbal consent script to invite student to be a primary participant. An in-person meeting will take place at the students’ school with the parent and student present. Consent and Assent forms will be signed at that time.

Hello, my name is [classroom teacher]. I work for Opportunity Elementary and I am your child’s classroom teacher. I have volunteered to participate in a study in my classroom and I am calling to invite your child to be in a research study about physical fitness activities in the classroom and literacy being done by Dr. John Lupinacci and Mandi Larson through Washington State University. Would you be interested in hearing more about the study and what it entails? Yes, continue, if No, thank them for their time and end the meeting.

First, participation is completely voluntary. Whether your child chooses to participate or not will have no effect on the student’s treatment or grades in the classroom. This study has been approved for human subject participation by the Washington State University Institutional Review Board. Over the remaining weeks of school this spring Mandi Larson would be observing the classroom and having your child produce drawings about how they feel about literacy and classroom-based fitness activities that are happening in the classroom. The time it will take for your child to make the drawings will be during the regular classroom day and should take no longer than 15 minutes for them to complete a few times during the study.

As the researcher, Mandi Larson will be collecting data during the study. The researcher will collect your child’s literacy test scores, drawings, and free and
reduced lunch classroom lists. All of your child’s information will be kept confidentially coded and their name will be erased from the data and a pseudonym will be used.

Everything your child says and does will be confidentially coded. When we tell other people about what we learned in the study, we won’t include any name of anyone else who took part in the research study.

Do you have any questions now that I can answer for you? If you’d like to participate, I’d like to meet to go over the paperwork at a group meeting.