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Elementary Teacher Perceptions Regarding the Use of Kinesthetic Learning Strategies

Heidi Erickson Erickson
Walden University

Walden University

College of Education

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Heidi Erickson

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Dr. Cheri Toledo, Committee Chairperson, Education Faculty
Dr. Christina Dawson, Committee Member, Education Faculty
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Eric Riedel, Ph.D.

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Abstract

Researchers have shown that movement increases brain function, improves mental health, supports cognitive development for students, and reduces sedentary time, all which can influence overall health. Research concerning learning with intentional movement is limited. In the United States, Common Core State Standards (CCSS) are being mandated, and teachers are challenged to teach the standards creatively and to maximize time used for instruction. The purpose of this qualitative study was to explore the lived experiences and perceptions of elementary general education (GE) teachers who taught CCSS using a kinesthetic learning plan (KLP). Bandura's self-reinforcement and social learning theories provided the conceptual framework; the principles of interpretative phenomenological analysis were used to structure the study. Research questions were framed to understand how the teachers experienced teaching the KLP and their perceptions related to how students learned the CCSS. Data were elicited through individual interviews with 11 GE teachers from primarily rural areas in the western part United States. In vivo coding and iterative analyses revealed themes and findings. Themes included teacher understanding (confidence and comfort), implementing resources (creativity and resourcefulness), teacher feelings (pressure and success), making the mind-body connection, and teacher beliefs and perceptions about their practices. Teachers perceived KLPs as useful in teaching the CCSS and experienced support for expanding their teaching practices. Positive social change implications include helping teachers maximize instructional time and helping students achieve standards and address health needs.

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Dedication

To my husband, Duane, for believing in me, even when I did not believe in myself. Thirty-five years ago, you asked me to grow old with you. I am so glad I said yes. I love you in a place where there is no time or space.

To my children, Mallory (and Blake), Zachary, and Hailey, I have always known your love, appreciation, patience, and guidance.

Lastly, to my first granddaughter Karsyn Grace, I had hoped to finish this before you were born, but you were born before I finished. We now have time to read, sing, dance, and play in the sunshine. I will always love you!

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I owe my complete gratitude to Dr. Christina Dawson and Dr. Cheri Toledo for putting up with me on my wild ride. I know I have not always been easy, but you made this journey worth reaching the destination.

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Chapter 1: Introduction

General education (GE) teachers across the United States are required to teach the Common Core State Standards (CCSS; National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). For many GE teachers, the CCSS dictate what all students needed to learn, but they do not dictate how the teachers should teach. The developers of the CCSS indicated that teachers, to be effective teachers, should develop their own plans such as kinesthetic learning plans (KLPs) that are aligned with the curriculum (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010) and make modifications to meet the needs of individual students.

A connection exists between physical movement and cognitive functioning (Davis et al., 2011; Hillman et al., 2014; Luz, Rodrigues, & Cordovil, 2015; Mayfield, Smith, Hay, Campbell, & Trollor, 2011) or psychomotor learning (Anthony & Edgington, 1971; Curtis, 1915; Darian, 2013; Dejonckheere et al., 2014; Käll, Nilsson, & Lindén, 2014; Magill & Anderson, 2014; Rigoli et al., 2013; Sibley & Etnier, 2003; Tomporowski, Davis, Miller, & Maglieri, 2008). To reach learners of all ability levels, elementary GE teachers can learn strategies to teach the CCSS using kinesthetic movement to instruct state-mandated subject matter.

Using movement to facilitate learning is not a radical paradigm shift; rather, movement to facilitate learning is important in early educational settings (Becker, McClelland, Loprinzi, & Trost, 2014; Cobb, Chissom, & Davis, 1975; Dewey, 1938; Dennison & Dennison, 1985; Mavilidi, Okely, Chandler, Cliff, & Paas, 2015;

Montessori, 1966; Piaget, 1953). Movement helps to jump start the brain of students of any age and get the blood flowing which can stimulate learning.

In Chapter 1, I introduce the study and provide the background, an overview of the methodology, and the purpose of the study. I organized his chapter to present the scope of the study and discuss the significance and social effect of the study. For my purposes in this study, I defined the elementary GE teacher as a credentialed classroom teacher responsible for teaching GE standards and content to students in kindergarten through Grade 6 in the public schools.

Background

The link among kinesthetic learning, kinesthetic movement, cognitive development, and physical activity (PA) has been researched over several decades (Dewey, 1938; Gardner, 1983; Montessori, 1966; Piaget, 1953; Vygotsky, 1978). In other words, education along with movement has some early roots as shown in this quote from Plato (n.d.):

> In order for man to succeed in life, God provided him with two means, education and physical activity. Not separately, one for the soul and the other for the body, but for the two together. With these means, man can attain perfection.

Dewey (1938) was an advocate of movement education, not only as physical education (PE) as a subject was but as part of the whole spectrum of daily learning. Piaget (1953), a psychologist, promoted the use of creating some schemata for learning, a building block of conceptually, changing knowledge based on experiences a child may have had. Montessori (1966) believed that young children need to get out and move in

the environment, in and out of the classroom, using physical activities and free movement to learn. Vygotsky (1978) theorized that a student is motivated to learn the intrinsic pleasure of discovery using multiple sources practicing with social partners, otherwise known as zone of proximal development (Berk & Winsler, 1995; Driscoll, 2005; Vygotsky, 1980). Psychomotor learning takes place alongside psychomotor movement because it involves coordination, balance, dexterity, object manipulation, and large motor movement to move around in general or personal space (Käll et al., 2014; Magill & Anderson, 2014; Rigoli et al., 2013). Many students are capable of learning when they move around within their physical environment rather than sit at a desk (Berk & Winsler, 1995; Burton & VanHeest, 2007; Dewey, 1938; Gardner 1983; Hamilton, Healy, Durnstan, Zedric, & Owen, 2008; Pica, 2006; Rose & Meyer, 2006; Sibley & Etnier, 2003; Wassenberg et al., 2005). Being an active participant rather than a passive participant in learning originated with Plato (n.d.) and, through time, gained strength among Dewey (1938), Piaget (1953), Gardener (1983), and Ratey (2008) decades later.

Students who are active in their environment during the school day are more likely to have higher *academic achievement* (AA) scores (Agostinho, 2015; Bevill, 2013; Cobb et al., 1975; Hansen, Herrmann, Lambourne, Lee, & Donnelly, 2014; Heshmat Larijani, Pourabbasi, & Pourabbasi,, 2014; Hillman, Erickson, & Kramer, 2008; Howie & Pate, 2012; Lopes, Santos, Periera, & Lopes, 2013; Robinson, 2006; Taras 2005; Van Dusen, Kelder, Kohl, Ranjit, & Perry, 2011), greater on-task time, and fewer off -task behaviors (Mahar et al., 2006; Ratey, 2008). Active students can benefit from a dynamic

learning environment when teachers make improvements that involve movement the classroom environment.

Researchers have shown that teacher perceptions are transformed when they make improvements such as changes in their classroom practices and use new materials or even a new approach (Guskey, 2002). Elementary GE teachers are teaching new learning material without a lot of formal training, "with the shift from state standards to CCSS, many teachers have struggled to familiarize themselves with CCSS and design new vehicles for instruction and assessment" (Carr, 2016, p. 22). Many of the professional development opportunities presented have more to do with CCSS content rather than teaching strategies. Many teachers can learn new teaching strategies at professional development workshops and conferences.

Guskey (2002) argued that teachers could learn within their teaching environment. Using a model of teacher change, Guskey suggested that changing teaching practices may be difficult and take time, but pupil-learning outcomes can benefit from teacher beliefs and attitudes. The teaching model of change suggested that even with curricular demands and pressures to perform, teachers could improve their teaching practices and student learning outcomes. Guskey noted that teachers could learn new material, have a greater perception within the classroom environment, and went so far to say, "that significant change in teachers' attitudes and beliefs occurs primarily after they gain evidence of improvements in student learning" (p. 383). The KLPs may stimulate innovative and creative teaching practices, which can promote a change in self-perceptions of effective teaching and reduce anxiety (Fullan, 2007; Ströhle, 2009).

Knowing that change brings about anxiety and stress, teachers who use KLPs may find these changes beneficial.

Data from my study showed how elementary education teachers perceived implementing KLPs using kinesthetic movement to teach the CCSS. At the time of my study, there was a limited amount of information on teaching the CCSS through kinesthetic movement because the CCSS were newly implemented in many states.

Problem Statement

For teachers, the implications of teaching the CCSS through kinesthetic movement align with the goals of the designers of the CCSS in that teachers have had the freedom to be innovative in their teaching strategies. Children learn by doing and moving (Hengstman, 2001; Jensen, 2005; Sternberg, Kaufman, & Grigorenko, 2008;) and excessive sitting may be associated with hazardous health effects (Hamilton et al., 2008; Singh, Uijtdwelligen, Twisk, van Mechelen, & Chinapaw, 2012) and be a detriment to current teaching practices.

Researchers have studied children moving and learning in the early childhood education, specifically in the play-based environment (Becker et al., 2000; Cobb et al., 1975; Darian, 2013; Dennison & Dennison, 1985; Gehris, Gooze, & Whitaker, 2015; Mavilidi et al., 2014; Montessori, 1966; Smith & Pellegrini, 2008; Syväoja et al., 2013). As students move into the elementary setting, the research focuses on learning in a sedentary position, rather than in a dynamic environment, specifically using movement to learn.

Plentiful research supports learning because of movement (Ahamed et al., 2007; Ardoy et al., 2014; Bartholomew & Jowers, 2011; Brusseau & Hannon, 2015; Castelli, Glowacki, Barcelona, & Calvert, & Hwang, 2015; Cobb et al., 1975; Mahar et al., 2006; Sattelmair & Ratey, 2009; Trost, 2009; Ratey, 2005), yet learning with intentional movement is sparse (Anthony & Edgington, 1971; Curtis, 1917, Darian, 2013; Fredericks, Kokot, & Krog, 2006; Hruska & Clancy, 2008; Posadzki, Parekh, O'Driscoll, & Mucha, 2010; Seitz, 2005). A successful strategy may help teachers develop greater self-perceptions of their teaching abilities (van Rijswijk, Akkerman, Schaap, & van Tartwijk, 2016). Teaching the CCSS using kinesthetic movement is one strategy used to motivate young students to move while learning important subject matter.

This aim of this study was to understand the perceptions and experiences of elementary GE teachers who used standards-based lesson plans that focused on kinesthetic movement as a teaching strategy. Specialists in the field of motor skill movement, conceptual movement, and PE have helped to develop KLP resources (Blaydes, 2000). For instance, in *Thinking on Your Feet 200 Activities That Move Kids to Learn*, Blaydes discussed how movement enhances learning and introduces action-based learning. The author highlighted the link between movement and learning and examined brain research and the growing body of research of movement and cognition. Blaydes also included more than 200 activities to teach academic content kinesthetically. For the purposes of this study, activities such as these were called kinesthetic learning plans, or KLPs. Elementary teachers who used the KLPs focused on movement to teach standards-based learning concepts, disguising learning as play. To learn the new CCSS

content while learning new teaching and instructional strategies can be an educational shift for many teachers who rely on the direct teaching instructional model.

Elementary GE teachers have had the past two academic school years to learn and teach the CCSS and have had little time to learn alternative-learning strategies. For this study, I interviewed a purposeful sample of elementary GE teachers to determine their perceptions about the implementation of grade-specific and content-specific KLPs and gave evidence of support to the self-reinforcement and social learning theories.

Purpose of the Study

The purpose of this study was to gain insight into the lived experiences and perceptions of elementary GE teachers who taught Common Core using kinesthetic movement delivered using KLPs. In particular, I was interested in hearing their ideas and experiences and in teaching strategies because they used movement for instructing their students in the Common Core. I was also interested in the perceptions of the experience of teachers with at least 2 years of teaching experience in general elementary education and who used the KLPs. I sought to understand their perceptions of the success of their students when they used kinesthetic movement to teach the Common Core as an alternative instructional strategy.

Research questions

1. How did the elementary education teachers experience using the KLPs to teach the Common Core?
2. What were the perceptions of the elementary education teachers about how students learn using KLPs to teach the Common Core?

Conceptual Framework for the Study

The conceptual framework for this study was based on Gardner's (1983) kinesthetic intelligence and on Bandura's (1977a) learning theory, particularly the self-reinforcement element. The latter holds that the more information teachers have and the more they practice, the greater the belief that they can be successful, which results in more effective teaching. For this study, I considered a constructivist approach as a qualitative humanistic attempt to make sense of an experience through description and explanations (Schwandt, 2015). Many educational philosophies also support that movement is important in the learning environment.

An originator of movement analysis and dance in the 20th century, Von Laban studied movement from a natural perspective and argued that movement was related to the mind and body (as cited by Gomez, 2015). Steiner (Steiner & Wilson, 1999), a leader in the Waldorf teaching methods, believed in a similar educational philosophy that movement was important in the education of the child. As a philosopher, Steiner (Steiner & Wilson, 1999) believed that,

> The act of will and the action of the body are not two things objectively known to be different, which the bond of causality unites; they do not stand in the relation of cause and effect; they are one and the same, but they are given in two entirely different ways: once quite directly and once in contemplation for the intellect. (p. 59)

Dalcroze (Seitz, 2005) believed that movement and thinking involve human intellect, was an integral part of bodily kinesthetic intelligence as suggested by Gardner

(1983) and Laban (Laban & Ullmann, 1971), and incorporate into speech and gestures. Ratey (2008) believed that movement is like fertilizer for the brain.

Bandura's (1977a) theory of self-reinforcement was a proper choice that guided this study, as participants could reflect and retell their lived experiences and share their ideas of using movement to teach the Common Core concepts. Bandura stated that "the more dependable the experiential sources, the greater are the changes in perceived self-efficacy in the learning environment" (p. 191) and asserted that the behavior within the environment influences the behavior because teachers become their reinforcing agents, set performance standards, and respond to their behavior.

Understanding teacher-participant perceptions by retelling a lived experience can bring that experience to a reflective experience (Van Manen, 2014; van Rijswijk, et al., 2016). A lived experience can be part of "the ordinary and the extraordinary, the quotidian and the exotic, the routine and the surprising, the dull and the ecstatic moment and aspects of experience as we live through them in our human existence" (Van Manen, 2014, p. 39) this then becomes more than a reflective experience. As a reflective practice, the self-reinforcement phenomena in learning theory, Bandura argued that "the more dependable the experiential sources, the greater are the changes in perceived self-efficacy in the learning environment" (Bandura, 1977a. p. 191). People learn by observing behaviors through learning linked with performance and reinforcement.

Teachers often use reflection to refine their practice and become more comfortable in the ability to try new practices (Carr, 2016). Learning may also occur using cognitive process using symbolic figures in image and verbal form when examples

are provided, such as lesson plans for teaching, all of which can be beneficial. With the increasing demands of teaching, those teachers who can combine teaching practices using the mind-body connection may create opportunities to focus on important concepts and global tools for learning (Fede, 2012). Guskey (2002) believed that teachers could learn new material and new teaching strategies within their learning and have a greater perception in the classroom environment.

Nature of the Study

This basic qualitative research study was designed to understand elementary GE teachers who use movement to teach the CCSS and make meaning of their experiences. I focused on meaning, understanding, and the process, using a purposeful sample to collect data in the form of interviews and reflective writing (Merriam & Tisdell, 2016). Designing a basic qualitative research study using constructivism as a philosophical position (Maxwell, 2013) was one way to understand how teachers engaged, interpreted, and made sense of their lives and the lived experience (Merriam & Tisdell, 2016). In this basic qualitative research study, I used constructivism as a social construct sought to understand how teachers interpreted the lived experiences and how the teacher constructed his or her world and applied meaning to the lived experience.

The phenomenon in this study consisted of the experiences of participating elementary GE teachers who used visual models or KLPs to teach the CCSS using kinesthetic movement. Using the complementary Interpretative Phenomenological Approach (IPA) approach in this research study had many advantages. An IPA approach helped to contextualize and make sense of opinions, claims, experiences, and concerns

(Symeonides & Childs 2015). For the purpose of this study, the IPA was an approach to help identify how individuals perceive and made sense of a situation (Smith, 2007). IPA research first appeared in 1990 in psychology and health psychology and moved into the fields of health, social psychology, education, and pedagogy (Smith, Flowers, & Larkin, 2009). IPA studies have primarily focused on the experiences and perspectives of participants in the medical and social sciences during life transitions (Symeonides & Childs 2015; Smith et al., 2009). IPA is an approach to understand a situation, rather than prematurely make general claims about a situation. IPA uses small, purposeful sampling of a small, defined group for determining the significance of the research questions, sacrificing breadth for depth (Frankfort-Nachmias & Nachmias 2008; Symeonides & Childs, 2015). Using a semistructured interview of a lived experience to recall and explore details of the experience or phenomenon is critical to recalling the experience (Seidman, 2013). The semistructured interviews in my study provided the qualitative data as part of a collection process to understand themes, patterns, insights, and understanding of the phenomenon. Janesick (2011), Miles, Huberman, and Saldana (2014) and Seidman (2013) all supported interview in qualitative research as a comprehensive method to understand the lived experience and the meaning created through the experience thus providing data to serve the practice of professionals and the purpose of this study.

For this research study, the phenomenon was the elementary GE teacher who used a kinesthetically based learning plan to teach the CCSS. Because of the CCSS intended philosophy, the elementary GE teacher has some freedom in how to instruct the students

in learning the concept, but the premise of the lesson was in the movement learning part of the instruction.

Recruitment fell into three categories. The first form of recruitment was a call on a professional organization webpage. Another form of recruitment used was social media, specifically Twitter to broadcast a call for participants throughout the profession. A third approach to recruitment was snowballing (Biernacki & Waldorf, 1981; Streeton, Cooke, & Campbell, 2004), where "initial respondents or interviewees were used to recruit additional respondents; the sample thus grows like a rolling snowball" (Schwandt, 2015, p. 279). A sample of this nature is of value, as one teacher suggests and shares the recruitment with other teachers he or she may think would be interested (Seidman, 2013). I believe that these recruitment procedures were valuable to acquire a homogenous group.

A Google site webpage (Appendix F) offered teacher participants general information about the study and the opportunity to complete the consent to participate in the form of a Google Doc. Once the teacher-participants gave consent, I contacted them using the email that the participant provided. I checked the Google site daily for updates to consent and participant responses. I asked the GE teacher to contact me, via email or in person, after they had taught a KLP. I asked the GE teacher to reflect on the KLP without any formal prompts and jot down information that helped to recall the lived experience of teaching the KLP. I contacted the participants and scheduled the interviews. The semistructured interviews consisted of one 60-minute interview, with a later 30-minute follow-up interview if needed. The GE teacher-participants each shared

the phenomenon or lived experiences as perceptions to the phenomenon and reflected on the KLP during the interview process.

Definitions

Academic achievement (AA): A student's progress in academic skills (Westendorp Hartman, Houwen, Smith, & Visscher, 2011).

Common Core State Standards (CCSS): Educational standards describe what students should know and be able to do in each subject in each grade (State Department of Education, 2015; Society of Health and Physical Educators America, 2014) and necessary for national economic competitiveness in a global economy (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010).

Educational kinesiology: "An enhanced ability to process information and learn more effectively due to certain types of movements" (Prashnig, 2004, p. 73).

Exercise: "Physical activity that elevates the heart rate into the target heartrate zone and sustains that elevation for a period of time" (Blaydes, 2015, p. 15).

Kinesthetic intelligence: To use the body to express ideas and feelings and to produce or transform things (Gardner, 1983).

Kinesthetic learning: Physically engaging classroom exercises (Begel, Garcia, & Wolfman, 2004).

Lived experience: "The state of affairs in which the world is lived, felt, undergone, and made sense of" (Schwandt, 2015) or "the ordinary and the extraordinary, the quotidian and the exotic, the routine and the surprising, the dull and the ecstatic

moment and aspects of experience as we live through them in our human existence" (Van Manen, 2014, p. 39).

Movement: "The navigation of one's environment, in other words not sitting still or not lying down" (Blaydes, 2000, p. 15).

Physical activity (PA): A bodily movement produced by skeletal muscles that result in energy expenditure (Caspersen, Powell, & Christenson, 1985) also described as a voluntary movement (Blaydes, 2000).

Assumptions

I made the following assumptions in this study:

1. Elementary GE teachers used the lesson plan as written as a teaching strategy to teach the CCSS.
2. Elementary GE teachers were willing to accept that innovative strategies may influence student learning.
3. Teacher participants were honest and open in their reflective writing and answers to questions.

Scope and Delimitations

The purpose of this study was to gain insight into the experiences and perceptions of elementary GE teachers who taught Common Core using kinesthetic movement, as a teaching strategy. I explored their ideas about movement, experiences with movement, and teaching strategies using movement for instructing their students according to the Common Core.

I invited volunteers who were elementary GE teachers with 2 or more years of experience who used movement to teach the CCSS. The data collected were from the small sample size of teacher participants who reflected on teaching experiences using kinesthetic movement to teach the CCSS and were interviewed as part of the study. The scope of the study was limited to elementary GE teachers found throughout the state, who had at least 2 years of teaching experience. This study was limited to experienced elementary GE teachers in the public schools; I excluded private schools, special education, and secondary GE teachers. The small sample size offered teacher participants to tell the phenomenon in their words, and to tell how they lived the experience.

Limitations

As with many studies, my study had limitations. The main limitation was the recruitment attempts for the teacher participants. The teacher participants consisted of those who had access to professional organizational bulletin boards, who had access to Twitter, or who had spoken with other teachers as part of a snowball effect (Seidman, 2013; Streeton et al., 2004). Another limitation may have been the limited amount of literature specific to the teaching practices of teachers within the state, because the CCSS was new at the time of my study and teaching documented practices are scarce. This study was limited to experienced elementary GE teachers in the public schools. Another limitation may have been the availability of teachers who were interested in using movement to teach and particularly in using KLPs. Lastly, the results are not

generalizable to public elementary GE teachers, as the richness of the unique lived experience is valued but might not be shared by teachers in all areas of education.

Significance

Data from this research study gave rich insight into the lived experiences of elementary GE teachers who used KLPs with kinesthetic movement teaching strategies to teach the Common Core. In many states in the United States, the teaching standards in math and English language arts (ELA) are the only two Common Core areas with standards. The concentration in these two areas provides students with the necessary skill sets that can be generalized into in other subjects (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010).

The CCSS has significantly affected a variety of stakeholders. For many teachers, these contemporary Common Core standards dictated what the students need to learn, but does not dictate how the students should be taught. The teachers have more freedom to decide which teaching strategies are effective and relevant. For students, the CCSS was designed to teach students what they need to know, can do, and learn to reflect, and apply the knowledge, and skills needed for success in college and careers. For researchers, the data from this research informed how teachers perceive success in teaching the CCSS to students using alternative teaching strategies and if teachers perceive that their students were successful in learning the core concepts.

Summary

Researchers have shown that students who are active in their environment during the school day are more likely to have higher AA scores, greater on-task time, and fewer

off -task behaviors (Agostinho, 2015; Bevill, 2013; Cobb et al., 1975; Hillman et al., 2008; Howie & Pate, 2012; LeBlanc et al., 2012; Lopes et al., 2013; Mahar et al., 2006; Ratey, 2008; Robinson, 2006; Taras 2005; Van Dusen et al., 2011). A kinesthetic activity can be beneficial for students and teachers.

The purpose of this study was to gain insight into the experiences and perceptions of elementary GE teachers who taught Common Core using kinesthetic movement. For this study, I interviewed a purposeful sample of elementary GE teachers to determine their perceptions about the implementation of grade-specific and content-specific standard based resource plans. In my study, I referred to resource plans as kinesthetic learning plans, or KLPs. The KLPs served as an effective teaching strategy and gave evidence of support to the self-reinforcement and social learning theories (Bandura, 1977a; Bandura 1977b; Craib, 2015). I asked the teacher-participants about the effectiveness and perceptions of success of the KLPs, to teach Common Core using kinesthetic movement teaching strategies in the elementary classroom.

I applied a constructivist approach along with the IPA approach to help reveal the lived experiences of the teacher-participants and the meaning of the experience as a reflective teaching practice. The semistructured interviews were a method of inquiry to understand the meaning of each teachers lived experience reflectively with language (Seidman, 2013). Reflections helped teachers identify thoughts of progress and success.

In Chapter 1, I introduced the study by including the general background information and the need for the study. Next, the problem statement, the purpose of the study, and presented the research questions. I then discussed the conceptual framework,

nature of the study, and definitions. Finally, I described the assumptions, scope and delimitations, limitations, and significance of the study.

In Chapter 2, I identify the literature search strategies and describe the research and related literature on the mind-body connection as it relates to PA and motor movement, cognition, and academic performance. I then identify the gap in scholarly research related to using movement to teach Common Core standards and finally I describe the use of the IPA.

In Chapter 3, I introduce the research method and design and explain the rationale for the study as well as my role as the researcher. I will discuss the methodology, issues of trustworthiness, and the ethical procedures.

In Chapter 4, I will describe the setting of the study and the demographics of the participants, a detailed description of the data collection procedures, an analysis of the data, the evidence of trustworthiness, and the results.

In Chapter 5, I conclude with the interpretation of the findings, limitations of the study, recommendations for future research, and implications for social change.

Chapter 2: Literature Review

Teaching the CCSS was new to the public-school teachers in some states in the 2014-2015 school year. The expectations of what CCSS had been identified, but the way to teach the standards was left to the individual teacher, or grade level teams of teachers (Society of Health and Physical Educators America, 2014). Academic instruction along with scheduled PA and PE are all beneficial parts of a child's school day (Ahamed et al., 2007; Ardoy et al., 2014; Bartholomew & Jowers, 2011; Brusseau & Hannon, 2015; Castelli et al., 2015; Cobb et al., 1975; Mahar et al., 2006; Sattelmair & Ratey, 2009; Trost, 2009). Researchers have shown that students who are active in their environment during the school day are more likely to have higher AA (Agostinho, 2015; Bevill, 2013; Castelli et al., 2015; Hansen et al., 2014; Hillman et al., 2008; Howie & Pate, 2012; Lopes et al., 2013; Ratey, 2008; Taras 2005; Van Dusen et al., 2011), greater on-task time, and fewer off -task behaviors (Mahar et al., 2006; Ratey, 2008), all of which are beneficial to classroom management.

Researchers have shown that an inner struggle now exists, forcing teachers to prioritize a teaching schedule as pointed out by Ardoy et al. (2014) when they wrote the following:

> Many schools are attempting to increase instructional time for Mathematics, Language, or Science subjects to improve standard-based test scores. As a result, PE sessions, recess, and others extracurricular physical activities often are decreased or eliminated during the school day. (p. e52)

In fact, Ardoy et al. (2014) argued that,

> physical activity (voluntary or structured) is beneficial for brain development, cognitive learning, and for the overall health of a student and increased energy expenditure and time outside of the classroom may give relief from boredom resulting in higher attention levels during classroom instruction. (p. 59)

Teachers who are willing to venture outside of the traditional teaching practices may find using movement to teach learning concepts to be a valuable tool (Dewey, 1938; Blaydes, 2000; Lengel & Kuczala, 2010; Montessori, 1966; Ratey, 2005; Taras, 2005). The research is useful to support changing teacher perceptions.

The purpose of this study was to describe the experiences and perceptions of elementary GE teachers who taught Common Core using kinesthetic movement as a teaching strategy. I explored their ideas about, experiences with, and teaching strategies as they used movement for instructing their students in the Common Core.

Literature Search Strategies

The primary literature search began a broad search of peer-reviewed articles and scholarly writings about *kinesthetic learning, activity and cognition*, *learning and cognition*, *movement and learning, physical activity*, and *academic achievement*, *educational kinesiology*, *teacher perceptions*, and *Common Core State Standards.* The research on the connection of PE, PA, learning, and cognition is vast.

According to research in the United States, the specific topic of movement while learning was limited to philosophical practices such as Brain Gym (Brain Gym International, 2003; Spaulding, Mostert, & Beam, 2010), Educational Kinesiology (Edu-K) and Movement (Ardoy et al., 2014; Jensen, 2005; Westendorp- Haverdings, 2014),

Action Based Learning (Blaydes, 2000), and Physical Activity Across the Curriculum (PAAC) (Vazou, Gavrilou, Mamalaki, Papanastasiou, & Sioumala, 2012). Other resources include, TAKE 10! (Goh et al., 2014; Stewart, Dennison, Kohl, & Doyle, 2004), Coordinated Approach to Childhood Health (CATCH) (Delk, Springer, Kelder, & Grayless, 2014), along with movement-based practices of Lengel and Kuczala's (2010) *The Kinesthetic Classroom*, and Ratey's (2008) *Spark: The Revolutionary New Science of Exercise and the Brain*.

Initiatives such as Let's Move (Koch 2013; Obama, 2012) from the First Lady Michelle Obama (Obama, 2012) began a major push to improve PA in children in the United States, but research was being carried out around the globe. In Australia, a physically active program called Encouraging Activity to Stimulate Young (EASY) Minds (Riley, Lubans, Holmes & Morgan, 2014; Riley, Lubans, Morgan & Young, 2015) and Classroom-Based Physical Activity (CBPA) (Stylianou, Kulinna, & Naiman, 2015) were created. Around the world, other countries conducted studies in movement and learning, such as those in Greece (Koutrouba, 2012), Portugal, (Lopes et al., 2013), Chile (Correa-Burrows, Burrows, Ibaceta, Orellana & Ivanovich, 2014), the Netherlands (de Greeff, et al., 2014; Mullender-Wijnsma et al., 2015; Post, Van Gog, Paas, & Zwaan, 2013; Ruiter, Loyens, & Paas, 2015; van der Niet et al., 2015), Canada, (Diamond, 2015, Diamond 2012; Diamond & Lee, 2011; Smith & Pellegrini, 2008), Germany, (Fischer, Moeller, Bientzle, Cress, & Nuerk, 2011), Latin America (Hoehner et al., 2013), South Korea (Kim & So 2013), Italy (Pesce et al., 2013), Iran (Heshmat et al., 2014), South

Africa (Fredricks, Kokot, & Krog, 2006), and Switzerland (Kriemler, Zahner, Schindler, & Meyer, 2010) to name a few.

Limited research addresses teaching through movement for students with learning disabilities (Boddy, Downs, Knowles, & Fairclough, 2015; Cammisa, 1994; Khalsa, Morris, & Sifft, 1988; Morris & Schulz, 1989; Reeves & Bailey, 2014; Spaulding et al., 2010; Tyler, MacDonald, & Menear, 2014; Westendorp, Hartman, Houwen, Smith, & Visscher, 2011; Wells, 2012; Westendorp-Haverdings, 2014) and motor coordination (Rigoli et al., 2013). A remote correlation exists between PA and motor performance in students with learning disabilities (Boddy et al., 2015) with intervention as a strategy, as Haapala et al. (2013) argued:

> A poorer motor performance was associated with poorer academic skills in children and especially in boys. These findings emphasize the early identification of children with poor motor performance and actions to improve their motor performance and academic skills during the first school years. Intervention studies comparing the effects of motor and cardiovascular training are needed to develop better strategies to improve academic skills among children. (p. 1023)

Little research exists that specifically targets the elementary GE classroom teacher who teaches movement as a strategy (Bartholomew & Jowers, 2011; Benes, Finn, Sullivan, & Yan, 2016; Donnelly & Lambourne, 2011; Fede, 2012) for learning the core content standards (Society of Health and Physical Educators America, 2014; Spielmann, Hartford, & Pearce, 2005), because early childhood education was a main focus of much of the research on using movement to teach.

In the United States, the Centers for Disease Control (CDC) recommended up to 60 minutes of physical fitness in the school day. The 60 minutes can be acquired within a PE class (NASPE, 2008), as part of the recess, within the classroom environment, or outside of school (CDC, 2013a; CDC 2013b; CDC 2010). Considerable worldwide literature focused on mega-analysis and systematic reviews in relation to PA as part of an instructional strategy within the classroom (Barbosa et al, 2016; Donelly & Lambourne, 2011; Erickson et al., 2015; Erwin, Abel, Beighle, & Beets, 2011a; Erwin, Beighle, Morgan, & Nowland, 2011b; Erwin, Fedewa, Beighle, & Ahn, 2012; Lee & Tomprowoski, 2016; Norris, Shelton, Dunsmuir, Duke-Williams & Stamatakis, 2015; Pesce et al., 2013; Rasberry et al., 2011; Sallis, Prochaska, & Taylor 2000; Soares et al., 2014; Tomporowski, McCullick, Pendleton, & Pesce, 2015; van der Fels et al., 2015). Many studies focused on developing quality PE to improve moderate to vigorous physical activity (MVPA) within the classroom to meet minutes rather than teach subject matter (Haapala, et al., 2016).

The research supported a correlation between PE and AA, and physical movement that stimulates specific brain functions for learning (Agostinho, 2015; Castelli et al., 2015; Hillman et al., 2014; Mullender-Wijnsma et al., 2015; Trost, 2009), but learning while moving in the elementary setting is sparse. PA is any bodily voluntary movement or produced by skeletal muscles that result in energy expenditure. (Blaydes, 2000; Caspersen et al., 1985). It was important to understand that there is a clear difference between PE which is mandated, standards based-instruction taught by a credentialed teacher and PA.

Several research databases from the physical sciences, the social sciences, and the psychological science perspectives were used. I used the Walden University Library portal to investigate the scholarly writings and peer-reviewed articles, along with Academic Search Complete, Google Scholar, ProQuest, and SAGE to refine the search into the different search terms and combinations of search terms in the various cross disciplines for the most current research. I also accessed educational websites that provided research-based articles on physical fitness, PA, and cognition such as activelivingresearch.org and supportrealteachers.org also provided peer-reviewed and research-based articles.

Conducting a subject search on the topic of education yielded many of the results on the Walden University Library link. Searching the educational databases such as ERIC, and SAGE Premier and the multidisciplinary databases of ProQuest Central, Science Direct, and Academic Search Complete yielded the greatest amount of research in cognition, learning, and educational practices. Additionally, the Doctoral Resources, specifically the Dissertations and Theses databases were combed to find scholarly writings on the related topics. It was clear that the search terms needed to be refined for a proper search to find current articles dealing with movement, learning, and standards-based educational practices. Beginning with *kinesthetic movement and learning* resulted in thousands of articles. It became necessary to perform searches with the term *physical activity*, rather than *physical education* and *cognition*, about cognitive abilities while moving, rather than because of movement. It was also important to use *academic*

achievement (academic growth while learning) as compared to *academic success* (assessment practices to measure learning).

Studies and projects worldwide document the association between physical movement and AA, with many affirming academic learning as a result or benefit of movement (CDC, 2010; Correa-Burrows et al., 2014; Mullender-Wijnsma et al., 2015; Trost, 2009), rather than movement while learning (Castelli et al., 2015; de Greeff et al., 2016a; de Greeff et al., 2016b; de Greeff et al., 2014; Lee & Tomporowski, 2016; Vazou et al., 2012). Movement while learning is a dynamic environment, while moving then learning, can be considered a dynamic environment first, but results in a static environment for learning.

The approach to moving while learning has been branded Educational Kinesiology (Edu-K) as named by Brain Gym and other researchers (Posadzki et al., 2010) as an alternate teaching and learning practice. The practice integrates movement, neuroscience, and sensory integration as alternatives to traditional learning. Educational websites were common that offered research-based articles on physical fitness, PA, and cognition such as activelivingresearch.org and supportrealteachers.org as well as academic papers, academic publications, and experimental research designs that support the research of the brain-mind connection (Brain Gym International, 2003; CDC, 2010; Lengel & Kuczala, 2010; Ratey, 2008; Trost, 2009). Another educational philosophy is the practice of Action Based Learning with strategies that "are based on brain research findings that support the link of early motor development, intentional movement, increased physical activity, and exercises to improve cognition" (Blaydes, 2000, p. 11).

There were resourceful books about teaching and learning through movement (Blaydes, 2000; Lengle & Kuczala, 2010; Ratey, 2008) that were created to discuss the importance of movement and gave brain based and brain compatible lessons for children of all ages.

Today, there are several worldwide based programs that have been researched and have found to be beneficial to movement and learning. Out of Australia came Encouraging Activity to Stimulate Young Minds -EASY Minds (Riles, Lubans, Holmes & Morgan, 2014), and Classroom Based Physical Activity (CBPA) as researched by Stylianou et al. (2015), EDUFIT (Ardoy et al., 2014), and in the United States TAKE 10! (Goh et al., 2014). Internationally, there are many research programs created to increase physical fitness through PA with a link to AA including Latin America (Hoehner et al., 2013) and the Netherlands (Mullender-Wijnsma, et al., 2015). Academic publications and experimental and descriptive research using specific Educational Kinesiology (ED) practices have demonstrated positive academic outcomes after using Brain Gym strategies (Brain Gym International, 2003). Although, research is minimal documenting the positive outcomes of physically active academic lessons in the classroom (McMullen et al., 2014; Mullender-Wijnsma et al., 2016; Mullender-Wijnsma et al., 2015; Stylianou et al., 2015) and taking into account student outcomes and classroom environment (Cothran, Kulinna, & Garn, 2010; Delk, et al., 2014; Erwin, 2011a; Erwin, et al., 2011b; Fischer et al., 2011; Goh et al., 2014; Ko & Bowell, 2013; Koutrouba, 2012; Maggs-Rapport 2011; McMullen, Kulinna, & Cothran, 2014; Reid, Flowers, & Larkin, 2005; Riley, et al., 2014; Roy & Carter, 2013; Rubenstein, McCoach & Siegle, 2013; Sanders, 2014; Stylianou et al., 2015), rather than the classroom teachers perspective.

The identified gap is research related to the teacher's perspective using physical movement to teach standards-based learning concepts as a teaching strategy; using movement to learn is an alternative teaching practice for student learning (Agostinho, 2015; Lengle & Kuczala, 2010; Ratey, 2008). Movement based activities use "space as one of the elements to explore, create, and communicate meaning" (Woolland, 2014, p.12). The CCSS dictate what students should learn, but not how the teachers should teach**.**

Using movement to learn is beneficial and intentional and allows teachers the freedom to teach the CCSS, as an alternative instructional strategy. Guskey (2002) argued that teacher perceptions could change with new teaching practices in a familiar environment, such as the classroom. A change in teachers' attitudes and beliefs is not a result of professional development, but a perception of effective teaching and positive student learning outcomes. To reach learners of all ability levels, elementary GE teachers who learn strategies to teach the CCSS have a greater chance of aligning teaching practices and student learning outcomes to a greater number of students in the class.

Academic language is a necessary enhancement for students, and just as important for teachers who need to find and understand important learning concepts. For instance, cognitive flexibility is important (Barker et al., 2014; Diamond, 2015; Diamond & Lee, 2011) as "the important executive function that reflects our ability to shift thinking and to produce a steady flow of creative thoughts and answers as opposed to a regurgitation of the usual responses" (Ratey, 2008, p. 54) and at present is aligned with the CCSS philosophy. Understanding terms related to cognitively-engaging versus non-cognitively

engaging activities (Best, 2015; Best, 2010; Diamond, 2015), is important to understand as related to developing children's executive functioning (EF) and creating the mind body connection (Barkley, 2016; Brock, Rimm-Kaufman, Nathanson, & Grimm, 2009; Davis et al., 2011; Greenough, Black & Wallace 1987; Hill, Williams, Aucott, Thomson & Mon-Williams, 2011; Hillman et al., 2008; Hillman et al, 2014; Howie, Schatz & Pate 2015; Kaufman, 2010; Lub, 2015; Luz et al., 2015; Pesce et al., 2013; Roebers al., 2013; Shaheen, 2014; Tomporowski et al., 2015; van der Niet et al., 2015). Creating the mind-body connection is essential, as students who move, are better learners.

The mind-body connection is essential, because students who move, are better learners, as compared to students who are idle (Barker 2014; Blaydes, 2000; Clemes et al., 2015; Fede, 2012; Furmanek, 2014; Hamilton et al., 2008; Martine & Murtagh, 2015); and who are less likely to perform to their potential in the academic setting (Trost, 2009). Sedentary students may become labeled as potential health risks (Castelli et al., 2014; Lengle & Kuczala, 2010; Reeves & Bailey, 2014; Shaw, Gomes, Polotskaia, & Jankowska, 2015; Ströhle, 2009). Understanding the correlation between PA and cognitive learning and important EF helped teachers become familiar with the importance of adopting innovative or alternative instructional strategies (Barkin, 2013; Barkley, 2014; Chen, 2015; Diamond, 2015; Ratey, 2008; Shaheen, 2015). The research validates that movement matters and the link between movement and learning is crucial; our bodies work hard to keep our brain performing (Ahn & Fedewa, 2011; Atkins, 2015; Brusseau & Hannon, 2015; Furmanek, 2014). Scudder, et al., (2014) studied the effects between fitness and academic language in 46, nine- to 10-year-old students. The research

indicates that students who are active in their environment during the school day are more likely to perform better socially, academically, and physically. They were more likely to have higher AA scores (Ardoy et al., 2014; Bevill, 2013; Cobb et al.,1975; Hillman et al., 2008; Howie & Pate, 2012; Lopes et., 2013; Robinson, 2006; Taras 2005; Trost, 2009; Van Dusen et al., 2011;), greater on-task time, and fewer off -task behaviors (Mahar et al.2006; Ratey, 2008). The higher fit children scored higher in language processing and had greater AA than their lower fit peers thus indicating the importance of PA in the school setting. For these reasons, children who move in a dynamic learning environment are better learners.

The self-reinforcement phenomena applied in learning theory increases in the principles of human functioning, better known as a learning environment (Bandura, 1977b). Bandura (1977b) believed that people learn by observing behaviors through learning linked with performance and reinforcement, but also that learning includes a cognitive process using symbolic figures in an image and in verbal form. Teachers who use visual models and reflective feedback are more likely to create a positive self-reinforcement of their teaching practices (Van Manen, 2014) and support Bandura's social learning theories. People learn by observing behaviors through learning linked with performance and reinforcement, but also that learning includes a cognitive process using symbolic figures in image and in verbal form and "under most circumstances, a good example is therefore a much better teacher than the consequences of unguided actions" (Bandura 1971, p 5). Bandura (1977a) asserted that the behavior within the environment influences the behavior because teachers become their re-enforcing agents,

set performance standards, and respond to their own behavior. A lived experience can be part of "the ordinary and the extraordinary, the quotidian and the exotic, the routine and the surprising, the dull and the ecstatic moment and aspects of experience as we live through them in our human existence" (Van Manen, 2014, p. 39) and this becomes more than just a reflective experience. The more information a teacher has, the more they practice, and the greater the belief that they can be successful, which will result in effective teaching (Bandura, 1993; Bandura 1977; Erwin, et al., 2011a; Erwin et al., 2011b; Garner, 1983; Goh et al., 2014; Goh et al, 2013; Finn & McInnis, 2011; Prashnig, 2004; Reid, Flowers, & Larkin 2005; Rose & Meyer, 2006; Seidman, 2013; Stylianou et al.,2015). A lived experience now becomes a reflective experience from which teachers can grow and learn to become more effective teachers.

For this study, the GE teacher perceptions, and reflections of the lived experience as a practice were an important learned and useful teaching strategy (McMullen et al., 2014; Moustakas, 1994; Van Manen, 2014). The Interpretative Phenomenological Analysis (IPA) is a descriptive feature with an interpretative focus to understand the point of view of the participants; more so, used to understand an experience as communicated by the participants, in this case, the elementary GE teacher (Larkin, Watts & Clifton, 2006; Smith, 2007; Symeonides & Childs 2015). Piaget (1953) believed that learners construct knowledge from their experiences. Vygotsky (1978) suggested that knowledge is important when creating social constructs as the learner discovers the concepts and facts for themselves. Some social constructivists may argue that learning is an active process and constructing reality is ongoing and learning is important in crucial thus,

creating new experiences. A constructivists approach was best suited for this study to understand the meaning from the participant's perspective as part of the reality in which I was trying to understand (Maxwell, 2013). The research problem is part of the conceptual framework because what is (or is not) going on in the world today is not fully understood.

Understanding the learning style of each student in a GE classroom is a formidable task. Creating an innovative and differentiated classroom, where all learners can demonstrate their knowledge of core concepts is a shift from the tradition of old school practices. Student expectations are to be career and college ready, and this training begins in the elementary education setting. The elementary (GE) teacher is responsible for laying the foundation for future learning. If students of all learning abilities venture into the secondary educational setting with a strong foundation of learning skills and respond to a variety of instructional strategies, they may be more likely to understand the CCSS in the seventh through twelfth grades. Elementary GE teachers who use a variety of instructional strategies to reach students of all learning abilities, as cited by Howard Gardner's (1983) *Multiple Intelligence* theory, and use kinesthetic learning as intelligence, is just one strategy, to give those kinesthetic learners, the opportunity needed to learn Common Core concepts.

The teachers who understand the benefits of the brain-body connection and the benefits that PA has on learning, can be effective leaders starting in their classroom (de Greeff et al., 2016a; Lengle & Kuczala, 2010; Ratey, 2008). The teacher who has models, trainings (Goh et al., 2013), resources, and a variety of instructional strategies,

will have a greater effect on student learning and promote diverse student learning styles (Brusseau & Hannon, 2015; Chen, 2015; Curlik & Shors, 2013; de Greeff et al., 2016a; de Greeff et al., 2016b; Florin, Shults, & Settler, 2011; Heshmat et al., 2014; Webster, Russ, Vazou, Goh, & Erwin, 2015; Wells 2012) which benefits all learning styles.

Remarkably, "Brain research has shown that the brain is 'plastic' in that it can adapt continuously, and its structure can be changed by certain kinds of stimulation, including movement" (Fredericks et al., 2006, p 29). In the next few sections, I examine the research on the mind-body connection, the physical movement and the cognitive function, the motor performance and cognition, the psychomotor learning, the PA, and AA. The differential instruction, the CCSS, the CCCS and the elementary GE teacher, and the practice of a qualitative research project specifically using IPA as a descriptive methodology were also discussed.

The Mind-Body Connection

A positive correlation exists between PA and academic performance combined with the teacher's role and influence for students' opportunity and ability to be active (Atkinson, 2015; Fede, 2012; de Greeff et al., 2016a; Heshmat et al., 2014; Hillman et al., 2014; Jawad et al., 2015; Kim & So, 2013; Singh et al., 2012). Children learn by doing and moving (Jensen, 2005; Hengstman, 2001; Sternberg et al., 2008) and to avoid hazardous health effects (Hamilton et al., 2008; Lengle & Kuczala, 2010; Singh et al., 2012) and improve AA (Agostinho, 2015; Hansen et al., 2014; Howie & Pate, 2012; Taras, 2005; Trost, 2009). Stagnant and inactive teaching practices need to be changed.

In 2010, the Centers for Disease Control (CDC) published an executive summary of *The Association Between School-Based Physical Activity, Including Physical Education, and Academic Performance* that resulted in a review of 406 research articles, which resulted in 43 articles spanning 23 years and matched the key words *physical activity* and *academic performance* (Centers for Disease Control and Prevention, 2010). School-based PE and recess play accounted for 22 of the studies. Extracurricular and classroom PA accounted for 28 of the studies. Some of the studies were interventional studies (67%) and many of them were longitudinal studies, which made up 76%. The results suggested that movement activities and PA breaks in the classroom might improve student performance. The literature has shown that PA has an effect on academic performance through "direct and indirect physiological, cognitive, emotional, and learning mechanisms" (CDC, 2000, p. 7). PA does have an influence on brain function and development and different aspects of academic growth. The results suggest that offering PA breaks during instruction has positive benefits and importantly has no negative effects and classroom teachers are encouraged to use this strategy (Trost, 2009). Furthermore, the CDC (2010) suggests implications for further study in the primary grades.

Moreover, an evaluation of the psychological benefits of PA and a child's intellectual function, cognitive abilities, and AA support contemporary cognitive theories directed toward activity and exercise (Agostinho, 2015; Anthony & Edgington, 1971; Roebers et al., 2014; Sibley & Etnier, 2003; Tomprowoski, McCullick, Pendleton, & Pesce, 2015; Tomporowski et al., 2008). The Mind-Body connection is critical in holistic

learning as the role of the cerebellum (which coordinates movement) and the connection to the prefrontal cortex (responsible for organizing mental and PA) and the motor cortex (the actual movement that involves cognitive functions) (Ratey, 2008). Experience influences the developing brain and determines the important neural preparation for the physical environment while the sensory experience affects the combination of recruited pattern connections (Greenough, Black, & Wallace, 1987). Intelligence is diverse, dynamic, and distinct as students move they must think (Davis et al., 2011; Luz, et al., 2015; Ratey, 2008; Robinson, 2006). Students can combine learning concepts with movement concepts.

Children can learn as they move (Blaydes, 2000; Curtis, 1915; Hengstman, 2001; Jensen, 2005; Katz et al., 2010; Spaulding et al., 2010; Sternberg et al., 2008; Vazou & Smiley-Oyen, 2014; Woolland, 2014) and excessive sitting may be associated with hazardous health effects (Hamilton et al., 2008; Lengle & Kuczala, 2010; Norris et al., 2015; Reilly, Buskist, & Gross, 2012; Singh et al., 2012). A lack of PA has potential negative biological attributes associated with cardiovascular and biological risks when students practice sedentary behaviors and increased inactivity (Florin et al., 2011; Hamilton et al., 2008; Jawad, 2015; Posadzki, et al., 2010; Shaw, et al., 2015: Syväoja, Tammelin, Ahonen, Kankaanpää, & Kantomaa, 2014; Väistö, et al., 2014; Webster et al., 2015). Physical health benefits are important and PA has positive mental health benefits as well (Ahn & Fedewa, 2011; Chen, 2015; Janssen & LeBlanc, 2010; Poitras et al., 2016; Shaw et al., 2015; Ströhle, 2009). Major concerns about the mental health effects of the sedentary practices of children exist, as “physical inactivity may also be associated

with the development of mental disorders: some clinical and epidemiological studies have shown associations between physical activity and symptoms of depression and anxiety in cross-sectional and prospective-longitudinal studies" (Ströhle, 2009, p. 777). Physical inactivity has been and continued to be, a serious health debate (Chen, 2015; Hamilton et al., 2008; Ströhle, 2009: Syväoja et al., 2014), with an undeniable lack of PA or sedentary lifestyles becoming more common to children leading to a variety of physical and mental health ailments (Ahn & Fedewa, 2011; Barbosa et al., 2016; Benes et al., 2016; Best, 2015; Brusseau & Hannon, 2015; Castelli et al., 2014; CDC 2010; Chen 2015; Davis et al., 2011; de Greeff et al, 2014; de Greeff et al., 2016b; Grieco et al., 2009; Heshmat et al., 2014; Martin & Murtagh, 2015; Lengle & Kuczala, 2010; Singh et al., 2012: Spitzer & Hollmann, 2013; Syväoja et al., 2013; Väistö, et al., 2014; Van Dijk, De Groot, Savelberg, Van Acker, & Kirschner, 2014). PA helps to increase the feelings of self-efficacy and self-esteem, which can improve AA, as well as, positive classroom behaviors (Hansen, Herrman, Lambourne, Lee & Donnelly, 2014; Lopes et al., 2012). Demonstrating a positive global relationship between physical activities, PE, academic performance, and cognition, may be difficult, as some associations may be weak (Atkinson, 2015; Barbosa Filho, et al., 2016; Esteban-Cornejo et al., 2014; Norris, et al., 2015; Rasberry et al., 2011; van der Niet, et al, 2015). Although, the research is clear that PA, as psychomotor learning, or physical movement, does not have a negative effect on learning or AA (Howie & Pate, 2012: Käll et al., 2014; Spitzer & Hollmann, 2013; van der Fels et al., 2015).

Research on teacher perceptions of using movement to teach, often occurs in early childhood education where learning occurs naturally in a play based setting (Becker et al., 2014; Clemes, et al., 2015; Gehris et al., 2015; Jawad, 2015; McMullen et al., 2014; Smith & Pellegrini, 2008). Gehris et al., (2015) examined how movement affected learning in a study 37 teachers from a Head Start program. The teachers used movement activities to teach rudimentary academic concepts such as students moving around in their environment to learn the life cycle of flowers and the insects that interact with them. The conclusions supported that young children need to move and when they move, they can learn. Also as an added benefit, movement helps prepare children by building confidence and social skills, which is important in future learning. Research supports that many teachers view the importance of training and would feel competent with more training and support to teach movement (Benes, et al., 2016; Blaydes, 2001; Cothran, et al., 2010; Erin, Abel, Beighle, & Beets, 2011; Erwin et al., 2011b; Finn &McInnis 2014; Goh, 2014; Ko & Boswell, 2013; Koutrouba, 2012; McMullen et al., 2014; Ratey, 2008; Riley et al., 2014; Roy & Carter, 2013; Rubenstein et al., 2013; Seitz, 2005; Stylianou et al., 2015). Although it is important to recognize that in many studies, including this one, that teachers do believe that movement and learning were distinctively connected. A teacher who is motivated to use movement to learn as a strategy can have an effect on learning and influence the environment.

Psychomotor Learning

The psychomotor movement involves coordination, balance, dexterity, object manipulation, and large motor movement to move around in general or personal space.

Many students are capable of learning as they move around within their physical environment rather than sit at a desk (Berk & Winsler, 1995; Burton & VanHeest, 2007; Dewey, 1938; Gardner 1983; Hamilton et al., 2008; Koch, 2013; Pica, 2006; Rose & Meyer, 2006; Sibley & Etnier, 2003; Wassenberg et al., 2005). Being an active participant, rather than a passive participant in learning, originated with Plato (n.d.) and gained strength with some of the strongest supporters such as Dewey (1938), Piaget (1953), Montessori (1966), Gardener (1983), and Ratey (2008) to name a few. For instance, Piaget (1953) believed that early elementary-age children experienced great difficulty thinking in abstract terms, that trying to understand the logic, they need concrete examples, and not just by storing or recalling information. Montessori (1966) communicated that young children need to be active in and out of differing environments, and not trapped in a desk in the classroom, and be active and free to move about in able to learn. Gardner (1983) proposed that that bodily kinesthetic was one of eight intelligences that involved skill sets to help find and create solutions to solve problems in one's lifetime as part of *Frames Of Mind: The Theory of Multiple Intelligences.* A growing body of literature and research has linked PA to improved brain function and cognitive development (Hill, Williams, Aucott, Thomson, & Mon-Williams, 2011; Hillman et al., 2007; Lopes et al., 2013; Luz et al., 2015; Ratey 2008). Furthermore, Ratey (2008) argued that biological changes are sparked by PA that helps brain cells bind together thus creating a stimulating learning environment

Physical Movement and Cognitive Function

Plato (fourth century, BC) claimed long ago that a sophisticated connection exists between the body and the mind and equally important that theory of thought continues today as many theorists and researchers continue to support this way of thinking. At the turn of the twentieth century, the Italian educator/researcher Maria Montessori (1966), introduced an alternative educational approach termed the Montessori Method. A fundamental practice of the Montessori Method was practical play, the practice of children using physical activities to learn, in and out of the classroom, as part of the learning environment. This heavily disputed learning practice lasted a short time in the United States, but a resurgence in the 1960s transpired. Dewey (1938) argued that education is a development within and marked by bodies of information and their related experiences. The connection begins with students being in the quality of an experience, which can be agreeable or disagreeable and influences later experiences (Dewey, 1938). At the end of the twentieth century during the 1970s and 1980s, the child-centered approach, introduced by Piaget's (1953) work that a schema for learning, a building block of conceptually changing knowledge, was based on experiences. Another learning implication is that whole or authentic activities ensure the best learning environment, as students are motivated to learn by the intrinsic pleasure of discovery using multiple sources practicing with social partners, otherwise known as *Zone of Proximal Development* (Vygotsky, 1978). The research spans decades connecting movement and learning and the benefits leading to improved cognitive performance.

Researchers today continue to support earlier theories of a connection between physical movement, cognitive functioning, and psychomotor learning (Anthony & Edgington, 1971; Curtis, 1915; Darian, 2013; Dejonckheere et al., 2014; Käll et al., 2014; Magill & Anderson, 2014; Mayfield et al., 2011; Sibley & Etnier, 2003; Tomporowski, et al., 2008). The psychological benefits of PA on a child's intellectual function, cognitive abilities, and AA support these contemporary theories directed toward activity and exercise and cognition (Anthony & Edgington, 1971; Haapala et al., 2015; Lengle & Kuczala, 2010; Medina, 2014; Sibley & Etnier, 2003; Tomporowski et al., 2008). Moreau (2015) believed that movement-based behaviors were important to all students as part of cognitive learning as "complex motor activities that combine cognitive and physical demands provide a promising direction" (p. 5 para 3). Spitzer and Hollmann (2013) examined the importance of PA on 24 German sixth-grade students and suggested students were less likely to show negative behaviors and were more accepting of each other when they were physically active. Greenough et al., (1987) studied how experience influenced the developing brain and decided that neural preparation is important in the physical environment, while the sensory experience can affect the combination of recruited pattern connections. Erickson et al., (2015) believed that brain research and cognition is in its infancy and has only been around in the last 10 years. Most works were related to PE and AA, rather than PA, and benefits to the brain. Higher fitness levels that are associated with greater PA are cognitively healthier for children. Thus, there are many benefits of PA.

Hamilton et al. (2008) studied the effects of inactivity and the practice of sedentary behaviors within the school day, suggesting a lack of PA may have potent negative biological attributes associated with cardiovascular and biological risks. Hamilton et al. suggested that a combination of a lack of PA and a sedentary lifestyle in the classroom can are a serious health debate.

American children have high levels of physical inactivity during the school day, and increased PA could be integrated into the classroom curriculum (Hansen et al., 2014). Goh et al. (2014) examined the effects of a classroom-based PA program of 210 elementary students and nine classroom teachers from third-, fourth- and fifth-grade classrooms in one elementary school in the United States. The students were divided into two groups, one group sat in the classroom for the 6 hours of academic instructional time while the other group took frequent activity breaks during the academic instructional time. All students were given pedometers, trained how to use them, and created a baseline period where traditional practices were observed. Using the TAKE 10! classroom- based curriculum trained teachers integrated movement and learning into the core subjects of the school day for one group of students. During a twelve-week span, all students recorded their in-school steps using the pedometers. The conclusions were that classroom based PA can be influenced by teachers who promote in class PA thus increasing a student's ability to be more active in the classroom, and had higher academic grades than those who were not as active and sat through much of the curriculum teaching.

Syväoja et al. (2014) found that in a study of 224 Finnish school-aged students, those who were physically inactive were at risk for learning cognitive prerequisites with PA being linked to enhanced cognition. Singh et al. (2012) conducted a systemic review of the literature and found a positive correlation between PA and academic performance and the teacher's role and influence for students' opportunity and ability to be active. Movement can help student performance as shared by Hill et al., (2008) who studied over 500 school-aged children ranging in ages 8-12 years old and concluded that exercise could affect cognitive functioning as it enhances the use of previously encoded memories. Researchers from the University of Illinois (Scudder et al., 2014) concluded that fit children score higher in academics, specifically reading and spelling, and have richer semantics than non-fit children as shown in a study of forty-six, nine to10-year-old children, thus proving the positive benefits of PA.

In a systematic review of the literature, Lee and Tomporowski (2016) created a Position Stand Titled *Physical Activity, Fitness, Cognitive Function, and Academic Achievement in Children* to determine if fitness does influence cognition and learning among five- to13-year-old's. A search of articles and studies that included cognition and learning; brain and AA resulted in numbers studies the met the criteria. The results suggested there was enough evidence to support a positive association between PA, fitness academic achievement, and cognition, as "delivery of physically active lessons generally results in improvement in academic achievement, whereas attempts to increase activity in PE do not" (Lee & Tomporowski, 2016, p. 1218). This conclusion of the 137 studies corroborates that PA does, in fact, did have a positive correlation to AA as well as

a positive effect on cognitive function in school-aged children. PA tasks involve executive functions (planning, strategizing, organization, and processing), enhance mental processing, and are critically important (Ahn & Fedewa, 2011; Best, 2015; Curtis, 1915; Davis et al., 2011; Diamond, 2015; Kaufman, 2010; Luz et al., 2015; Shaheen, 2015).

Research has helped to understand the executive function as it relates to psychological processes and social behaviors of a child's brain providing evidence to support age-appropriate and developmentally-appropriate learning as it was important for a child who is ready to learn to be provided with experiences where cognitive levels matter (Barkley, 2016; Brock et al., 2009; Diamond 2015; Diamond, 2012; Diamond & Lee, 2011; Shaheen, 2015; Spitzer & Hollmann, 2013; Tomporowski et al., 2008).

Motor Performance and Cognition

Dewey (1938) asserted that it was important to allow students to interact with the world around them, not just be a passive participant in the learning process. When students are physically moving in their learning environment, they stimulate their frontal and parietal lobes that help with visual acuity, three-dimensional understanding, developing visualization skills, and structural problem solving, which helps with predictability (Tully, 2007).

Researchers have indicated a relationship between motor performance, attention, and EF (Barkin, 2013; Barkley, 2014; Davis et al., 2011; Luz et al, 2015; Rigoli et al., 2013; Shaheen, 2015; Sibley & Etnier, 2003; Syväoja, et al., 2014; Wassenberg, et al., 2005; Westendorp-Haverdings, 2014). Although, from a "neuropsychological

perspective, the close association between motor and cognitive development can be explained by the co-activation of the cerebellum, important for complex and coordinated movements, and the prefrontal cortex, critical for higher-order cognitive functioning, i.e. executive functioning" (Westendorp-Haverdings, 2014, p. 9). A positive relationship between performance and specific functions such as working memory, verbal fluency, attention, and visual motor development, and other aspects of EF, related to motor performance but the global link between cognitive and motor behavior was insignificant (Barkin, 2013; Barkley, 2014; Diamond, 2015; Shaheen, 2015; Syväoja, et al., 2014; Wassenberg et al., 2005). Students need structured PA to promote a variety of gross motor control skills, as they appear to play an important role in AA. Gross motor coordination and AA of Portuguese elementary school were reviewed, and the authors concluded that students with lower motor control skills were more likely to have lower AA scores (Lopes et al., 2013). Experience does influence development (Greenough et al., 1987) and active interaction, and physical characteristics of the environment are critical to gaining valuable information (Curtis, 1915; Dewey, 1938). Curiously enough, PA was associated with an increase in arousal levels, attention span, and a decrease in boredom.

PA bursts within an elementary classroom can improve fitness in children. As part of a mixed-method, study Sanders, (2014) sought to find if a classroom- based PA program would improve fitness of third-grade students. In the multi-school study, 229 participants were divided into two groups, an intervention group (n=110) and a control group (n-129). Sanders collected a baseline measure of fitness scores from PE teachers at

the participating schools. Using teacher focus groups, the feedback showed that each intervention teacher was asked to perform short, frequent activity busts in the classroom instructions. Results showed that the students at the intervention schools had significant improvement to their fitness scores, but a positive outcome showed that these same students provided a focus for student restlessness throughout the day, which resulted in fewer behavioral issues.

Diamond (2015) suggested that research has focused on the benefits of PA in young children, and the improved diverse motor and EF skills have concentrated solely on the outcome measures. In a review of literature on the effects of physical exercise on EF, Best (as stated in Diamond, 2015) concluded that, "improving bimanual coordination and eye-hand coordination and working on activities that require frequently crossing the midline and/or rhythmic movement, might be particularly valuable" (p. 1011).

In a doctoral dissertation, Darian (2013) studied a small population of early education teachers and students in a Waldorf School setting. The study focused on the philosophies and beliefs of the teachers about movement based learning and other areas of teacher preparation. The relationship to integrative the movement and the connections to learning are important as Darian concluded that children were eager to learn when movement was integrated into the lesson, and the children were more focused, and cooperative with other peers. The micro-ethnographical case study approach was useful as the early start programs can be an important part of preparation for the elementary school setting. Important to this study, Darian also considered the perceptions and beliefs

of the early start teachers and concluded that there were common threads among the teachers as he said:

> From the beliefs shared by the teachers and the teaching methods observed, a natural progression was evident in the teachers' intentions concerning movement and its foundation for cognitive processing: the movements of free play allow a child to learn needed skills to embody the more structured movements brought by the teacher; while, structured teacher-led movements prepare a child and enhance brain activity for the more sedentary cognitive processing required to learn certain academic subjects. (p. 63)

Consequently, Darian suggested that further research should include other educational settings and larger populations of students and teachers that might reveal dissimilar curriculum threads or commonalities.

Roebers et al., (2014) supported Piaget's theoretical assumption that motor and cognitive performance were associated. In this longitudinal study of 169 preschoolers, Roebers et al., determined if motor skills and intelligence were connected to school achievement and executive function (working memory, inhibition, and motor skill development). Manual dexterity tasks and non-verbal intelligence tests were used to decide if fine motor skills and intelligence supported predictable higher future AA. Results suggested the EF was a driving force and an important factor in brain development that needs to be engaged in information processing and task demands. As "executive processing (including information processing speed, attention, and/or the mastery of speed-accuracy trade-offs) are shared mechanisms involved in both fine motor

tasks and intelligence tests" (Roebers et al., 2014, p. 294). Motor development was an important domain and needs effective cognitive ability as well as efficient EF skills (Barkin, 2013; Barkley, 2014). The frontal lobes play an important role in motor control and cognitive functioning and "coordination exercises lead to a facilitation of neuronal networks that result in pre-activation of cortical activities that are responsible for cognitive functioning" (Lopes et al., 2013, p. 14**).** Coordinated activity depends on activation of the cerebellum, which influences motor function for concentration, working memory, and attention.

In a study of 596 urban Portuguese elementary school children, researchers suggested that motor coordination was a prerequisite contributor to physical, social, and cognitive development (Lopes et al., 2013). The public elementary school students were administered an AA test, along with fitness, and motor coordination test. Researchers gathered the student measurements for height and weight to calculate the body mass index (BMI). Results showed that students with low gross motor coordination, regardless of sex, had a higher probability of having low academic scores and students with higher gross motor coordination scores had better health overall. Although results suggested that daily, PE classes and recess were excellent venues for students to increase PA. there was a strong relationship between gross motor coordination and academic success. The limitations in this study were admittedly a concern, as the authors said that physical fitness was measured by aerobic capacity and the use of BMI, which were not strong indicators of gross motor coordination in elementary school children.

Luz et al. (2015) studied 96 healthy fourth-graders in Portugal and determined that there was a moderate association between motor coordination (MC) and executive function (EF). Each student was assessed for MC using balance, hopping, and skipping ability, and cognitive ability using planned codes, matching numbers, and planned connections. Results suggested that "participants with high levels of MC have better performance in planning task than participants with low levels of MC, especially in tasks with higher cognitive demands" (p 139). These two Portuguese studies suggested and supported the theory that students with higher MC have better cognitive abilities to complete tasks with greater cognitive demands.

Tomporowski et al., (2015) looked at cognition rather than motor coordination, and used the term exercise. In a longitudinal study two types of exercise were examined, acute and chronic. The notion that learning occurs during and after acute short bursts of exercise or with repeated sessions of chronic exercise and which will produce changes in mental functioning. Results from the study suggest that exercise does alter and contribute to academic performance and positively enhances cognitive processing.

Remarkably purposeful, flexible, and coordinated behaviors can be executed if they were learned and become automatic that is without much thought if created with the properly learned mappings (Miller & Cohen, 2001: Spitzer & Hollmann, 2013). The prefrontal cortex (PFC) is important as "depending on their target of influence, representations in the PFC can function variously as attentional templates, rules, or goals by providing top-down bias signals to other parts of the brain that guide the flow of activity along the pathways needed to perform a task" (Miller & Cohen, 2001, p. 193).

Stimulating the PFC is important in for cognitive control, in learning, storing, and retrieving information (Spitzer & Hollmann, 2013), all necessary ingredients in the elementary school environment.

From a historical perspective, there is a positive effect of PA on the constructs associated with AA (Burton & VanHeest, 2007; Hansen et al., 2014; Howie & Pate, 2012; Hill et al., 2011; Ratey, 2008; Roebers, 2014; Syväoja, 2014; Taras, 2005; Van Dusen et al., 2011; Westendorp et al., 2011). It may be confusing to determine what specific types of PA were directly associated with positive academic outcomes (CDC, 2010; Howie & Pate, 2012; Ratey, 2008; Sibley & Etnier, 2003), when some define PA as activity through recess, PE, breaks in teaching, or extracurricular activities.

Physical Activity and Academic Achievement

Acquiring appropriate motor control is a strong contributor to a student's physical, social, and cognitive development (Lopes et al., 2012). Researchers show that students who are active in their environment during the school day are more likely to show greater on-task time and fewer off -task behaviors (Mahar et al., 2006; Ratey, 2008). Active students have exhibited higher AA (Bevill, 2013; Clemes et al., 2015; Hillman et al., 2008; Howie & Pate, 2012; Lopes et al., 2012; Ratey, 2008; Taras, 2005; Van Dusen et al., 2011).

Taras (2005) researched the literature on the relationship between students' health and school performance. Taras supported the need for PA during the school day, and yet vigorous activity not necessarily related to greater gains. Positive benefits of PA lead to improved social skills, improved mental health, and negative behavior reduction (Ahn &

Fedewa, 2011). Taras also believed that the research offered useful information about the short-term cognitive benefits and the link to physical activities during the school day, yet, more research was needed to support global correlations between the two. As a follow-up to Taras's (2005) work, Singh et al., (2012) conducted a systematic review of the literature and found that participation in PA not only helps in enhancement of brain function but also is positively associated with academic performance in children. Similarly, Hill et al. (2011) also replicated an earlier study that showed a link between exercises and enhanced cognitive performance through the release of various molecules within the brain over time.

Searching online databases and using the keywords or terms of PA, age, and AA, found in 14 studies that a significant positive relationship does exist and the longitudinal and intervention studies provide quality support to further research. Sattelmair and Ratey (2009) found that physically active play does influence cognitive development. As Mullender-Wijnsma et al. (2016) have suggested that PA and academic outcomes among schoolchildren, are connected, and that a reduction in PA time has a direct effect on student learning; the benefits outweigh any perceived drawbacks.

In a study of 687 second- and third-grade students, researchers Hansen et al. (2014) determined that when students are provided more PA opportunities, undoubtedly, AA does increase, but unfortunately "With recent financial constraints on educational budgets and increased pressures on schools to meet mandated achievement standards, educators may be tempted to increase their focus on academics, perhaps to the detriment of PA opportunities for children in school" (p. 8). Having a similar conclusion, in a study

of 1963 students in the fourth- through sixth-grades in a Louisiana Health Project to find a correlation between adiposity, PA, and test scores. It was clear that all three were not directly correlated, but there was a linear suggestion that adiposity does have a negative effect on physical abilities, and lack of PA is strongly associated with poor test scores, but the assumption is not clear that overweight students are more likely to have poor test scores. Intervention in a school setting is important as key as LeBlanc et al., (2012) stated, "school-based settings may be an effective location to conduct prevention and intervention activities. However, many schools, under pressure to increase academic achievement, have decreased or eliminated recess and physical education" (p.9).

The study of the physically active academic lesson in a regular classroom in the Netherlands found that blending learning activities with physical activities might lead to encouraging academic outcomes as well as health improvement (Mullender-Wijnsma et al., 2015). This study was different in that the teachers were explicitly hired to teach mathematics and language to the Dutch students. On-task behavior improved, time on task improved. More importantly, this study showed that, "physically active academic lessons do not come at the expense of academic lesson time" (p. 370) which is an important consideration as "integration of physical active academic lessons in the school curriculum may be an innovative way to increase the amount of health-related physical activity as well as academic achievement" (p. 371). In 2016, Mullender-Wijnsma and researchers (2016) studied second- and third-grade students from the Netherlands during a two-year period. A control group (n=250) and an intervention group (n=249) were followed with the intervention teachers using active academic teaching for 2 years. The

results suggested that physically active academic lessons positively and significantly improved spelling and math performance as the intervention group of students had four months of greater gains, compared to those students in the control group. The authors suggested that math and language be taught using physically active academic lessons.

Thus, studies show regular PA does help the cognitive, mental (Ahn, & Fedewa, 2011; Roebers et al., 2014; Syväoja, 2014; Tyler et al., 2014), and physical aspects of a child's body (Lopes et al., 2013; Mahar et al.,2006; Sattelmair & Ratey, 2009). Numerous studies have concentrated on the relationship between elementary school children, the benefits of PA, and academic performance (Ahmed et al., 2007; Atkinson, 2015; Riley et al., 2014; Roebers, 2014; Ruiter et al., 2015; Salvy, Prochaska, & Taylor, Scudder et al., 2014; Syväoja et al., (2013). Research indicates that there are variables to PA and AA as healthy students are better equipped for learning, lifelong healthy habits, while unhealthy or less fit students are at greater risk in developing unhealthy habits and potential health risks (CDC, 2013b; de Greeff et al, 2016a; Florin et al., 2011; Grieco, Jowers & Bartholomew, 2009; Haapala et al., 2016; Hamilton et al., 2008; Heshmat et al., 2014; Jawad, 2015; Kim & So 2013; Pesce et al., 2013; Reilly et al., 2012; Salvy, et al., 2012; Ströhle 2009; Väistö, et al., 2014; White House Task Force on Childhood Obesity, 2010.

In Finland, researchers (Haapala et al., 2016) looked at MVPA and sedentary time (ST) in reading and arithmetic skills of 158 boys and girls 6 to 8 years-old and found that boys, in the first, second, and third grades, the MVPA was directly associated with reading fluency, and reading comprehension. If a male student was shown to have higher

ST, and low levels of MVPA, reading scores were lower. In girls, the MVPA an ST had a significant correlation to arithmetic, but the smaller correlation to reading fluency and comprehension. Studies such as these, show a strong correlation between PA, AA, and sedentary time. Practical implications from this study prove that increased PA and decreased sedentary activity do affect academic performance differently in boys than in girls, but has positive outcomes for both boys and girls.

In 2015, Corder et al., investigated the academic performance of 845 boys and girls from secondary schools in Cambridgeshire and Suffolk, in the United Kingdom, in relations to sedentary behavior and PA. Boys had greater activity time with less yet girls had increased academic performance. The data shows that there are no clear indicators of why this is, yet there are many variables that are associated with these outcomes, such as sex, ethnicity, socioeconomic status, time spent doing homework, subject matter, and educational system, all important factors to be considered. In schools around the world the research continues to be clear that high sedentary time along with low PA affect a student's ability to perform in many settings (Community Preventive Services Task Force, 2016; Corder et al., 2015; Esteban-Cornejo et al., 2014; Haapala, et al., 2013; Haapala et al., 2016; Hansen et al., 2014; Mitchell & Byun, 2014; Poitras et al., 2016; Väistö, et al., 2014).

Erwin, Beighle, Morgan, and Noland (2011) created a low-cost, teacher directed classroom as an intervention for elementary students. They asked five teachers to be trained and to use inexpensive curricula to lead PA breaks during a school day. One hundred and six students in third- through fifth-grade wore pedometers during 3 months

of a school year to reach a quality number of recommended steps as well as reach suggested levels of MVPA. Following the lead of the National Association for Sport and Physical Education (NASPE, 2008) for a multifaceted approach to fitness and learning to reach mandated PE movements, teachers, and students alike, took part in the intervention. These authors considered the importance of policy and change in PA interventions when they concluded:

> This is important considering the Obama administration's reform plan, which is encouraging states to make improvement in teacher effectiveness and ensure that all schools have high-quality teachers. The plan is for teachers to be held accountable for using innovative strategies to improve student outcomes. Incorporating movement in lessons may be 1 such strategy for improving academic performance while simultaneously contributing to children's daily PA. (Erwin et al., 2011; p. 460)

There have been many attempts to target PA and fitness in the schools. The White House Task Force on Childhood Obesity (2010) discussed that due to a lack of PA in the schools, incorporating movement in the curriculum and classroom activities was recommended. The recommendation is that schools integrate PA into all subject and planning and use movement as a teaching strategy:

> Schools can offer students breaks for movement during the school day, such as an extra few minutes for students to stretch before the beginning of a class, or integrating activity and movement into lessons. Some schools might offer physical activity in the classroom as part of planned lessons that teach

> mathematics, language arts, and other academic subjects through movement. These types of activities contribute to students accumulated physical activity during the school day. In addition to promoting good health, physical activity within the regular classroom can enhance on-task classroom behavior of students and set up a school environment that promotes regular physical activity. (p. 73)

There were definite differences between physically active lessons and PA breaks. Few studies dealt with movement as part of the curriculum (Barbosa-Filho et al., 2016; Donnelly et al., 2016; Donelly & Lambourne, 2011; Erwin et al., 2011a; Erwin, et al., 2012; Martin & Murtagh, 2015; Norris et al., 2015; Riley et al., 2014; Ruiter et al., 2015; Sanders, 2014; Webster et al., 2015) while other studies focus on interventions that used PA without curriculum learning outcomes (Martin & Murtagh, 2015; Rasberry, et al., 2011). These studies focused on keeping or redirecting students back to a task because of movement (Ahamed et al., 2007; Erwin et al., 2011b; Grieco, Jowers, & Bartholomew, 2009; Käll et al., 2014; Mullender-Wijnsma et al., 2015: Soares et al., 2014; Shoval, 2011; Trost, 2007; Webster et al., 2015; Wells, 2012). Brain breaks are simple tasks that allow students to stand up, move, and stimulate their brain so that they can return to a sedentary task (Väistö, et al., 2014). These short bursts of energy are important and can be given in small doses during a school day (Milteer, Ginsburg & Mulligan, 2012; Poitras et al., 2016). Other interventions allow students to increase their MVPA, increase minutes for PA (CDC, 2010; Donelly et al., 2016; Haapala et al., 2016; Soares et al., 2014; Trost, 2007), increase time on task, or prevent unwanted behaviors.

To target childhood obesity, as part of the Physical Activity Across the Curriculum (PAAC) project Donelly and Lambourne (2011) conducted a 3-year study of 24 elementary schools in the United States who used PAAC lessons in a variety of academic areas and the results showed that a combination of increased PA and academic instruction was beneficial. The relationship between PA and cognition does influence AA as the student's baseline BMI decreased and fitness and academic scores increased. The results also suggested that teacher influence was favorable and influenced positive outcomes. The First Lady of the United States, Michelle Obama started the *Let's Move* campaign (Obama, 2012) to increase PA in school-based programs to fight obesity and sedentary lifestyles (Benes et al., 2016; Community Preventive Services Task Force, 2016; Corder et al., 2015; Mayfield et al., 2011; Mitchell & Byun; Syväoja et al., 2013; Väistö, et al., 2014).

In the United States, Finn, and McInnis (2014) sampled 47 female students in the fifth and sixth grades using a questionnaire and a focus group of eight students and interviewed two science teachers. The mixed-method study focused on the feasibility of incorporating PA into the science curriculum. The authors agreed with earlier researchers that positive student attitudes are more likely to occur in activities that are of interest and enjoyable. The teachers were interviewed using open-ended questions "regarding their use of movement, their understanding of connections between movement and learning, and the feasibility of implement the curriculum and their positive and negative views of the program" (p. 239). Classroom based PA was a multidiscipline teaching strategy used in a creative curriculum design. The authors concluded that

students were successful being exposed to a new way of learning while being physically active. The students improved on their positive behaviors of alertness, time on task, focus, and concentration, another benefit of this innovative teaching strategy.

In a study of 228 elementary children from second and third grades in the Netherlands, academic classroom lessons were developed in the math and language curriculum (Mullender-Wijnsma et al., 2016). The results showed that the intervention group (N=110) who took part in physically active academic lessons scored higher on both math and reading in comparison to a control group (N=118). In Germany (Fischer et al., 2011) children used full-body spatial movement to learn numerical associations using a digital dance mat. Nineteen kindergartners were divided into two groups with experimental students using a spatial number line, while the control students used a tablet PC. The presentation and response were the only difference the content stayed the same. The children in the experimental group showed more growth than the control group as they had greater accuracy in positioning the number.

In Australia, Riley et al, (2014) and colleagues explored the influence of integrating PA into a math lesson by using the Encouraging Activity to Stimulate Young Minds (EASY minds), a curriculum-based activity integration program. The study of a cluster randomized, controlled trial of fifth- and sixth-graders at eight public schools, along with eight teachers had two purposes, a) examine student engagement and on-task behavior and, b) measure the intervention outcomes related to teacher behaviors. The researchers said that many studies "found teachers are willing to ingrate PA into the

academic subject, but lack the necessary skills and knowledge" (p. 8). Adding PA into the classroom affects student behaviors, but takes planning.

In Canada, the AS! BC health model used physical activities that were integrated into the whole school environment (Ahamed et al., 2007). Elementary students in the fourth- and fifth-grades were given added minutes per day of classroom PA. AS! BC intervention focused on meeting recommended PE minutes that could include ropes, bands, balls, videos as well as teacher-led physical activities. Trained teachers were given lessons, resources, and equipment for the 396 students to use. Although this was a school-wide program, the activities were considered to supplement physical activity as part of PE, but results suggest that PA does not compromise their academic time or performance.

Hoehner et al., (2013) evaluated Latin American PA interventions in a systematic review of the literature published between 1980 and 2006 and found that "only school-based physical education had enough evidence to recommend wide spread adoption" (p. e31). One goal of the current study was to create an updated systematic review of PA intervention from 2006-2010 for translating tools to practice and find gaps. Researchers hoped to give information on "what to do" and "how to do it" (p. e38) to inform research into practice for Latin American students.

Following earlier studies Vazou et al. (2012) examined the integration of PA in the academic subjects of elementary Greek students to figure out if student's intrinsic motivation and perceived confidence increased with PA. The findings showed "that students exerted higher levels of effort when PAs were included in the lesson and

continued to try hard in the following lessons" (p. 260). These results again showed that PA can be successfully integrated into academic lessons with positive student and teacher outcomes.

Teachers who used alternative and differentiated instructional strategies to promote cognitive development (Morris & Schultz, 1989) further accentuated the benefits of implemented PA in the general and special education setting. Moreau (2015 presented empirical evidence and current trends and believed:

> More time should be allocated to activities that encourage the development of complex motor behaviors in challenging environments. In this regard, the addition of passive or active motor features (e.g., observation, gestures) within traditional learning situations in the classroom is often beneficial, as it can lead to a better understanding of concepts and content. (p. 5 para 3)

The field of education is about the promise of cognitive enhancement for all learners. Children need to move around especially those who need it the most. For many students, intrinsic motivation is hard to measure and may result in poor performance for non-traditional learners and require differentiated instruction.

Differentiated Instruction

Differentiated instruction (also referred to as differentiated learning) is a framework or philosophy for teaching and learning that considers all learning styles and behaviors of students (Tomlinson, 1999). Tomlinson believed that teachers could reach all students by using teaching differentiated instruction through content, process, product, and the learning environment based on the individual learner. Students who have been

identified as English Language Learners (ELL) benefit from multiple instruction techniques that include strategies in the physical domain (Buell & Whittaker, 2001; Clancy & Hruska, 2005; Moughamian, Rivera, & Francis, 2009). For instance, using PA that includes academic language helps to offer low-stress environments, positive social interactions, and helps show language comprehension through physical expression (Bellanca, Fogarty & Pete 2012; Clancy & Hruska, 2005; Hengstman, 2001; Hruska & Clancy, 2008). Similarly, students with Attention Deficit and Hyperactive Activity Disorders who are challenged by a combination of brain and body learning movements are better prepared to stay on task, are better prepared for home and class work, and display more proper behaviors (Moreau, 2015; Ratey, 2008; Reeves & Bailey, 2014). Consequently, students who have Autism Spectrum Disorder (ASD) or have difficulties with socialization and fitness, benefit from movement (Tyler et al., 2014). Students who have learning difficulties can also learn important concepts when paired with musical movement (Gardner, 1983; Jaques-Dalcroze, 1920; Juntunen & Hyvönen, 2004; Phillips-Silver &; Rauscher, 2002; Seitz, 2005; Trainor, 2007; Westendorp et al., 2011).

Those students who are often marginalized may benefit from differentiated instruction, and influenced by teachers who are willing to implement alternative teaching strategies such as the principle *Multiple Intelligence Theory* (Gardner, 1983) and Universal Design for Learning (Rose & Meyer, 2006). Gardner (1983), in his *Theory of Multiple Intelligence*, states that different specific kinds of intelligence interact to create intelligence. *Kinesthetic intelligence* is one of the main intelligence that use the body to express ideas and feelings and to produce or transform things in a learning environment.

While *Multiple Intelligence Theory* focuses on the interaction of intelligence, Universal Design for Leaning (UDL; Rose & Meyer, 2006) focuses on multiple means of representation, action and expression, and engagement, for working with individual students and their individual learning styles. These factors significantly affect the role of a teacher and student success. For students with identified (and hidden) disabilities, play can be an important part of the learning process (Boddy et al., 2015; Carmisa, 1994; Lengle & Kuczala, 2010; Morris & Schulz, 1989; Moughman et al., 2009; Pesce et al., 2013; Pesce, 2012; Reeves & Bailey, 2014; Richardson et al., 2014; Salvy et al., 2012; Tyler et al., 2014). Students of all physical and cognitive abilities are often included into the GE program, where the CCSS are taught daily and modified in the special education setting.

Common Core State Standards

In 2009 state leaders, governors, and state commissioners developed standards that would be consistent across the nation aptly named the CCSS initiative. Along with the political leaders, the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO) intended to create real-world learning goals to ensure all students are ready for college, career, and life skills. Taking the existing standards, leaders in the field and with the help of public feedback drafted the CCSS. In the early 1990s, each state needed to develop student standards for success (Society of Health and Physical Educators America, 2014). The consistency across the country was lacking, if a student moved from one state to another,

the grade expectations might be different as the standards were different in each state (State Department of Education, 2015). As it turns out, students were not educated on an equal basis with some states having higher expectations than other states do, thus allowing some students to graduate with lower expectations. The development process was divided into two parts, the college and work readiness expectations, and the kindergarten through 12th grade expectations. The NGA and the CCSSO listened to the concerns and voices of the contributing stakeholders, which consisted of citizens, teachers, school administrators, and parents, who were major contributors and shapers of the final version of the standards. Released in 2010, the CCSS intended to have higher, clearer and fewer standards for American students (Mathis, 2010). The CCSS were created to provide opportunities to collaborate and develop curriculum, and provide consistent teaching practices in teacher preparation programs, as well as creating accurate accountability systems (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). Designed to prepare all students for the workforce after graduation, the CCSS influenced teaching professionals by offering opportunities for consistency in goals and expectations in ELA and math.

The CCSS in ELA and math were introduced to students in grades Kindergarten through twelfth grade during the 2014-2015 school year. The decision was to incorporate these two foundational content standards as they are critical building blocks for student learning and can be linked to other conceptual learning components beginning in the elementary school setting. Research has shown that elementary GE teachers are the frontline for teaching critical learning foundations (Bellanca et al., 2012; Cobb et al.,

1975; Lopes, et al., 2013; Van Dusen et al., 2011) that can be disguised as play and practice skills needed to make future judgments

Common Core State Standards and Elementary General Education

Elementary GE teachers who were willing to teach new learning material, along with teachers who use models such as a KLPs, may promote creative teaching practices and reduce anxiety (Fullan, 2007). Currently, there is an absence of the information on teaching the CCSS using kinesthetic movement as the CCSS were implemented last school year. There are research using music to teach as an instructional strategy, as related to spatial-temporal task performance (Rauscher, 2002) and multi-sensory interactions (Phillips-Silver & Trainor, 2007) and movement knowledge theories (Jaques-Dalcroze, 1920; Juntunen & Hyvönen, 2004; Seitz, 2005) but little had been published about using movement to teach the CCSS.

The U.S. Department of Education website lists forty-three states, the District of Columbia, who have adopted the Common Core state standard initiatives, with standards in ELA and math (CCSS Initiative, 2015). There was a large amount of opposition to the implementation of the Common Core Standards in other states although "given the current strengths and weaknesses in testing and measurement, policymakers should not implement high-stakes accountability systems where the assessments are inadequate for such purposes" (Mathis 2010, p. 16). Opponents to teaching the CCSS contended that the federal government should not intrude into the role of and define curriculum and instruction education at the state and district levels (Mathis 2010). Per Mathis, a line of reasoning does exist that students across the nation will now have equal learning

opportunities and the divisions between races, geography, school cultures, socioeconomic, gender, and educational benefits were finally leveled. For this reason, every student will now be prepared for college and work readiness globally, with evenly balanced and comparable standards-based teaching and testing.

The developers of the CCSS envisioned that GE teachers would be able to develop different types of strategies, for example a KLP, to teach to the individual students (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). The CCSS may have claimed to provide students with the foundational skills to face the global markets of the future, yet, there still is vital issues with the implementation of the Common Core. When speaking directly about the CCSS, Murphy and Torff (2016) believed that teacher performance is linked to confidence and perceived effectiveness when they say:

> If teachers report a loss of confidence in their ability to teach effectively in the CCSS era, it is likely that their performance also lags. Research shows that individuals who believe they are performing well may or may not be, but individuals who believe they are ineffective almost always are, so a reduction in perceived effectiveness is a reliable indicator of diminished performance (p. 23)

The resources needed to meet the needs, the accountability, and the funding shortfalls are still a major concern, so teachers need to be creative for effective teaching. Learning involves collaborative problem solving, and can be helped through whole and authentic activities (Harland, 2003). Children learn by doing and through experience in

play and teachers now have a unique opportunity to implement new teaching strategies and use differentiated instruction to reach all learners.

Basic Qualitative Research and Interpretative Phenomenological Approach

Qualitative research is one way to access the world by questioning, answering, and reflecting with the sources and meanings of a lived experience. Teachers can use reflection to refine their practice and become more comfortable in the ability to try new practices. The demands on teachers have increased. Teachers who consider the mind-body connection as a teaching practice, have greater opportunities to focus on important concepts and global tools for learning in an effective manner. Using a reflective practice of lived experiences enables a teacher to see themselves to experience and experiment with innovative practices to teach important core learning concepts.

In an effort to become more effective, teachers need to have information, they need to practice, they need to reflect, and believe that they are successful. People learn by seeing behaviors through learning linked with performance and reinforcement. Learning includes a cognitive process that uses symbolic figures in an image and in verbal form and actions that can be reflective and relevant to preferred actions. Behavior that forms within the environment influences the future behavior as teachers become their reinforcing agents, set performance standards, and respond to their behavior (Bandura, 1977a). Understanding teacher-participant perceptions by retelling a lived experience can bring that experience to a reflective experience (Van Manen, 2014; van Rijswijk et al., 2016). A lived experience can be part of "the ordinary and the extraordinary, the quotidian and the exotic, the routine and the surprising, the dull and the ecstatic moment

and aspects of experience as we live through them in our human existence" (Van Manen, 2014, p. 39) become more than a reflective experience.

Basic qualitative studies are common in education (Merriam & Tisdell, 2016) and using a complimentary methodology with IPA, helped identify how individuals perceive and make sense of a situation (Smith, 2007). IPA helps to contextualize and make sense of opinions, claims, experiences, and concerns. IPA uses small, purposeful sampling of a small, defined group for deciding the significance of the research questions, sacrificing breadth, for depth (Frankfort-Nachmias & Nachmias, 2008; Symeonides & Childs 2015). IPA researchers have two aims in mind, 1) to understand a participant's world and give details and descriptions about what it is like, 2), and to provide commentaries both critical and conceptual, of the participants' ability to make sense of the situation (Larkin et al., 2006). IPA was used to understand a situation, rather than to make general claims about a situation prematurely.

Summary

Regular PA does help the cognitive, mental, and physical aspects of a child's body (Ahn & Fedewa, 2011; Mahar, Murphy, Rowe, Golden, Shields, & Raedeke, 2006; Roebers et al., 2014; Sattelmair and Ratey, 2009; Tomporowski, et al, 2015; Trost, 2007). Students who are active in their environment during the school day are more likely to have higher AA scores, greater on-task time, and fewer off -task behaviors (Agostinho, 2015; Bevill, 2013; Hillman et al., 2008; Howie & Pate, 2012; Lopes et al., 2012; Mahar et al., 2006, Ratey, 2008; Taras 2005; Van Dusen et al., 2011). In other words, "the plan is for teachers to be held accountable for using innovative strategies to improve student

outcomes" [and] "incorporating movement in lessons may be one such strategy for improving academic performance while simultaneously contributing to children's daily PA" (Erwin et al., 2011b; p. 460). As Bandura (1993) suggested the more information a teacher has, the more they practice, and reflect, the greater belief in success, which may result in effective teaching.

People learn by seeing behaviors through learning linked with performance and reinforcement. Learning includes a cognitive process that uses symbolic figures in an image and in verbal form and actions that can be reflective and relevant to preferred actions. Behaviors that form within the environment influence the future behaviors and responses (Bandura, 1977a). Understanding teacher-participant perceptions by retelling a lived experience can bring that experience to a reflective experience (Van Manen, 2014; van Rijswijk et al., 2016). Movement is important the education of the young child as an educational philosophy (Gomez, 2015; Steiner & Wilson, 1999). Teachers who have the knowledge, practice, training, and are reflective, develop a stronger belief in success thus resulting in effective teaching (Bandura 1977a, Bandura, 1977b, Bandura, 1993). Subsequently, Murphy and Torff (2016) agreed, "with the shift from state standards to CCSS, many teachers have struggled to familiarize themselves with CCSS and design new vehicles for instruction and assessment" (p. 22). A basic qualitative inquiry with an IPA approach was chosen to help teacher participants to make sense of their experiences and their engagement within the experience (Larkin et al., 2006). Teachers, who can reflect upon their behaviors, and link performance and reinforcement together, create future behaviors that can result in more productive and effective teaching practices.

In Chapter 3, I introduce the research method and design and explain the rationale for the study as well as my role as the researcher. The methodology, issues of trustworthiness, and ethical procedures are then discussed.

Chapter 3: Research Methods

The purpose of this study was to gain insight into the experiences and perceptions of elementary education teachers who taught Common Core using kinesthetic movement, as a teaching strategy. This aim of this study was the elementary GE teachers who used a standard-based lesson plan as a resource that focused on kinesthetic movement as a teaching strategy. In particular, I explored their ideas about, experiences with, and the movement teaching strategies they used for instructing their students in the Common Core.

In this chapter, I present the research design and rationale for the study. I also discuss the role of the researcher, the methodology, and the issue of trustworthiness.

Research Design and Rationale

The research questions that guided my study were based on concerns about the decreasing opportunities that students should physically move within the typical school day. With an increasing importance on standards–based education, it was fitting for teachers to be innovative in their teaching practices by combining strategies to teach important learning concepts. One such pedagogical approach was to use kinesthetic movement to teach the CCSS. The research questions for my study were as follows:

1. How did the elementary education teachers experience using the KLPs to teach the Common Core?

2. What were the perceptions of the elementary education teachers about how students learn using KLPs to teach the Common Core?

IPA was the methodological approach to address the research questions in my basic qualitative study. IPA was an approach to understand the personal, lived experience with a commitment to open-mindedness, and to suspend and bracket off preconceptions (Smith et al., 2009). Using a reflective interview of a lived experience to recall and explore details of the experience or phenomenon was a complementary approach (Seidman, 2013).

For my study, I interviewed a purposeful sample of elementary GE teachers to determine their perceptions about the implementation of grade-specific and content-specific standard based resource plans as an effective teaching strategy and provide evidence to support the self-reinforcement and social learning theories (Bandura, 1977a; Bandura 1977b; Craib, 2015). A case study was not appropriate as a research method because it is used to understand a problem, issue, or concept within a social context. I did not use a phenomenological study because the teachers did not randomly experience the phenomenon, as it was intentional. A grounded theory was not appropriate. This qualitative inquiry was not a theoretical level account of the phenomenon, offered explanations, or generated multiple theories. An ethnographic study is used to study people or cultures in the field of study, which was not the focus of this study. A basic qualitative study is used in education to help participants interpret the experience and the meaning associated with the experience to understand how they make sense of the lived experience.

Role of the Researcher

As the researcher for this study, I was responsible for recruiting participants; conducting the interviews and collecting, analyzing, and presenting the data. As is common with basic qualitative research studies and the IPA approach, I, the researcher in this study, was the instrument for collecting data (Maxwell, 2013; Seidman, 2013; Smith et al., 2014). I was solely responsible for developing the interview questions, conducting interviews, and collecting the data. I collected the data via interviews in person. All interviews took place either in a public place or in the classroom at the convenience of the participant. I created the semistructured interview questions for the interviews, which lasted up to 60-minutes. The first interview consisted of open-ended questions that allowed the participants to recall their general feelings and lived experiences with the context of the phenomenon. The first semistructured questions were a mix of questions and probes used to ask questions flexibly (Appendix A). I asked specific questions of all participants that were flexibly worded to allow the participant to respond naturally to a question or statement (Merriam & Tisdell, 2016). I asked probing questions, or second-tiered questions, as a follow-up to explore and expand on the responses to the first questions. Probing question helped me to adjust the question and enabled the participants to give more details. Participants brought notes if they had them, as part of reflection to help reconstruct the lived experiences, rather than attempt to remember. Only four participants brought their written reflections to the interview. Seven participants reflected on the lessons without writing anything down. One participant asked the

students to write a one-word description of the activity and included the words as part of her reflection. Follow-up interviews for clarification were not needed.

After the interviews, I presented each participant, in person or email, with their transcript review and each participant accepted the interview transcripts, and no further information was exchanged. I was responsible for member checking. This occurred during the interview process to restate an answer or check for understanding. I also used member checking as part of a review to summarize my preliminary finding and to check for any inconsistencies, again, this was done in person or via email. All the participants were pleased with my preliminary findings and did not make any corrections or found it necessary to discuss anything further.

Researcher Bias

In my daily role as an Adapted Physical Education (APE) specialist, I have had the opportunity to see many structured PE classes and PA sessions that lack instruction within many of the elementary schools that I serve weekly. Because of my passion for physical fitness, PA, and quality physical instruction, my biases were identified. I did not approach specific participants. They were recruited by other teachers or responded to a call on a professional organization or social media page. I assumed that some of the participants might have known me, and I may not have interacted with any of them, as my study was not specific to the area where I work. As the researcher, I was interested in this topic of using kinesthetic movement to teach the Common Core, and because I am not an elementary education teacher, I was interested in the perceptions of a lived experience from the elementary GE teacher using an instructional strategy. The IPA

approach focused on lived experiences and understanding (Smith et al., 2009) and helped develop an understanding of the lived experiences, rather than trying to interpret the lived experience.

Methodology

Participant Selection Process

Recruitment fell into three categories. A call on a professional organization webpage in discussion posts was one form of recruitment. Another form of recruitment was using a social media tool called Twitter. A Twitter broadcast or tweet, was sent out as a call for participants throughout the profession. Using the social media was an acceptable way to recruit and share knowledge known as Social Learning. Present in academic and collegial circles, Social Learning (Bingham & Conner, 2015) is learning that "transcends social media, training, or workplace learning practices of the past" (p. 27). There is now more information sources and access to people, more dissemination points, and a wider network of communication. Social learning compliments concepts of the *Social Learning Theory* as it encourages the transfer of knowledge from one person to another. The third approach to recruitment was snowballing, where the first respondent recruited other respondents as the sample may snowball (Biernacki & Waldorf, 1981; Schwandt, 2015; Streeton et al., 2004). A sample of this nature was of value, as one teacher shared the recruitment with other teachers he or she thought were interested (Seidman, 2013). Consequently, the snowball method had the most value, as teachers referred other teachers.

For this study, the elementary GE teacher was a credentialed classroom teacher who was responsible for teaching GE standards and content to kindergarten through sixth-grade public school students. The participant selection criteria for this study was (a) current elementary education teacher with 2 or more years of experience, (b**)** teach a resource lesson plan using kinesthetic movement, (c) willing to be interviewed and share their lived experiences, feelings, and perceptions about using the KLPs. I did not choose the participants, they were either recruited by other teachers or responded to a call on a professional organization or a social media web page.

A purposeful sample of elementary GE teachers was interviewed to determine their perceptions about the implementation of grade-specific and content-specific standard based resource plans or as it was called a KLP. A webpage gave teacher participants general information about my study and a link to complete the consent to participate. Once the teacher participants had given consent and taught a KLP, I asked that they let me know via email, and I then contacted participants to schedule interviews. Unfortunately, the academic school year ended, and I could only recruit four participants. One was not a current elementary education teacher. The other three were interviewed in person and reflections were collected. The data was not analyzed at the time. As the new school year began another round of recruitment occurred and the remaining eight participants consented and were then contacted and interviewed.

Instrumentation

Data were collected via interviews in person, online, or by phone, which was all common forms of data collection (Merriam & Tisdell, 2016; Seidman, 2013; Van Manen,

2014). I created the semistructured interview questions for the interviews which lasted up to 60-minutes. Follow-up interviews could have been conducted as needed for clarification, but not needed. The first interview consisted of open-ended questions that allowed the participants to recall their general feelings and lived experiences with the context of the phenomenon. These first semistructured questions were a mix of questions and probes used to ask questions flexibly (Appendix A). Specific questions were asked of all participants but flexibly worded to allow the participants to respond naturally to a question or statement (Merriam & Tisdell, 2016). Probing questions, or second-tiered questions were asked as a follow-up to explore and expand on the responses to the first questions. Probing question helped me to adjust the questions and enabled the participants to offer more details. Participants could bring notes if they had them, as part of reflection to help reconstruct the lived experiences, rather than attempt to remember. Only four participants brought their written reflections to the interview. The other seven admitted that they reflected on the lessons, but had not written anything down. One participant asked the students to write down one word to describe the activity as part of her reflection. Reconstruction of a lived experience in any form was important as it was based on memory and important pieces of the event (Seidman, 2013).

When conducting an in-depth interview, it was important to understand the lived experience and the meaning that the participants made of that experience. Each of the elementary GE teacher-participants was asked to write a reflection shortly after teaching the lesson. Only six of the eleven gave written reflections, as the others said that they

kept their reflections inside their brains and could recall them. These reflections were discussed during the interviews.

An IPA study tends to have a small sample size and aims to detail the events closely considering the perceptions and understandings of the participants (Smith et al., 2009; van Rijswijk, et al., 2016) and a sample size between eight and 12 were reasonable. Seidman (2013) argued that there were two criteria for deciding how many interviews were enough, the first is the sufficiency, and the second is saturation of information. The number of participants should be enough so that others outside of this population may have a chance to connect to the experience. The breadth and depth of the interview data must be acceptable and pleasurable, rather than repetitive and laborious. The number of participants that was considered enough may vary from each study and each researcher, yet using in-depth interviews from a few participants can be more powerful, as the descriptions can be rich (quality) rather than a large sample of surface level interviews (quantity).

Data Analysis

Three approaches were used in this qualitative research study to condense, display, and verify the data, as suggested by Miles et al., (2014). For my study, the data were gathered, condensed, and reduced into themes and categories. This process continued until the fieldwork was completed and the data were compiled into a final report. Interview transcripts were shared with participants as part of a transcript review. Transcript review was done to verify the words of the teachers so that I did not transcribe any words, thoughts, or feelings, as spoken, incorrectly. As transcripts were approved,

the data were displayed in structured text to help categorize the robust qualitative information into a more accessible organization for analysis. Condensing and displaying the data were important parts of analyzing the data to answer the research questions. The data were organized using in vivo hand coding used in qualitative data analysis. Central ideas were organized and in vivo coding was used to honor the participants' voices (Miles, et al., 2014), and winnowed down into discernable chunks of data, and into themes and smaller discernable units for easier understanding. The data were used to create visual images to characterize and create a meaningful picture of the lived experience. Finally, my initial interpretations of the data were shared with the participants and checked for accuracy, known as member checking. Member checking was used to corroborate or verify the findings for trustworthiness and credibility (Seidman, 2013) and assured that the data were valid (Schwandt, 2015). I used transcript review initially and then used member checking as an added step later in the process to make sure that my data analysis was congruent with the lived experiences of the teacher. I broke down data into themes on an individual basis and presented the individual summaries to the participant. Participants approved of the selected narratives either verbally or in written email communication, as there were no corrections or errors noted. I used practices such as transcript review and member checking to help to create valid and reliable data.

Issues of Trustworthiness

Trustworthiness was the criteria for judging the qualitative inquiry to determine significance and establish validity (Schwandt, 2015). Qualitative studies needed criteria

for trustworthiness in credibility (internal validity), transferability, dependability, and confirmability. Validity was traditionally defined "as the degree to which the indicators or variables of a research concept are made measurable, accurately represent that concept" (Lub, 2015, p. 2). In qualitative research, the methodological literature was used to link research to evaluation and to emphasize or introduce different paradigms. Lub (2015) discussed the importance of validity in qualitative research in having a view or lens to unite perspectives of the researcher, the participant, and the external readers.

Credibility

Credibility was verified using triangulation of data in the form of the interview, the written reflection (or as many teachers said, "mindful cataloging"), journaling, and member checking. Triangulation is important in phenomenological studies for validity as researchers collect information from multiple perspectives using a range of participants and settings (Lub, 2015; Maxwell, 2013; Smith et al., 2009). Lub (2015) argued that "Triangulation, in particular, reduces chance associations and biases due to specific methods used, allowing for greater confidence in interpretations" (p. 5). Developing a greater understanding of a qualitative study included using descriptive, interpretive, theoretical, and evaluative data for deeper meaning (Miles et al., 2014). Member checking allowed the participants to assess the credibility of the researcher's account; and decrease the chances of misinterpretations from the data (Lub, 2015). Member checking was an effective strategy that was used for trustworthiness to help look for evidence to challenge the data analysis outcomes and thwart potential threats.

Transferability

Participant's ability achieved transferability to reconstruct the lived experiences with rich descriptions in their words, rather than to simply remember or recall the event within the analysis (Seidman, 2013). Thick descriptions were constructed in richly detailed accounts of the participants within their settings to include the experiences and emotions in a fair manner (Guba & Lincoln, 1981; Lub, 2015). I used transferability for findings to be congruent, connected to prior theory, and applicable in comparable settings (Miles et al., 2014). Transferability links the participant's lived experiences to the literature review in Chapter 2.

Dependability

I established dependability and confirmability by keeping detailed, notes, drafts, and journals that show credibility and the findings from the threat of potential biases. This was discussed with reflexivity. Reflexivity considered that the "researcher is part of the social world and he or she studies, and can't avoid either influencing this or being influenced by it" (Maxwell, 2013, p. 90). When conclusions were confirmed by different data sources, the results were more credible and valid (Lub, 2015) and resonate to other individuals, settings, and situations.

Confirmability

I used confirmability for "relative neutrality and reasonable freedom from unacknowledged research bias" (Miles et al., 2014, p. 310). My study detailed the assemblages of data collection, analysis, display, and conclusions were drawn. Just as important as the procedures, the "researcher has been explicit and as self-aware as

possible about personal assumptions, values and biases, and affective states – and how they may have come into play during the study" (Miles et al., 2014, p. 312). The trustworthiness of this qualitative study was dependent on my credibility and the rich, thick descriptions that helped to facilitate transferability, paired with the triangulation of data that left an exhaustive trail.

Ethical Concerns Related to Recruitment and Data Collection

Walden Institutional Review Board (IRB) approval (05-24-16-0292750) was obtained before the study began. Participants were volunteers and were recruited by other teachers or responded voluntarily to a call on a professional organization or a social media web page. There was no harm (intentional or unintentional) for the participants, as all information about the participants was kept confidential, as any personal identifiers or personal information were not used and pseudonyms were assigned. All participants were reminded that they had the right to withdraw at any time and that all data were verified using member checking for validity. As part of good practice, informed consent was important and gained not only for participation but also as part of the outcome of data analysis or publication takes place (Smith et al., 2009). Data were collected via interviews in person, or by phone, and recorded with participant permission. Interviews were conducted within the agreed upon period and at the convenience of the participant. The approach to data collection was a commitment to open-mindedness, to suspend and bracket off preconceptions when it came to research design and conducting interviews (Smith, et al., 2009). All data were stored on an external drive that is securely locked in my home office cabinet. The hard copy data is kept in a locked drawer also in my home

office. All data will be stored for 5 years and then shredded to thwart any added ethical concerns.

Summary

This chapter included the research design and rationale, my role as the researcher, and the methodology of the study. The IPA approach to data collection was a commitment to open-mindedness, to suspend and bracket off preconceptions when it came to research design and conducting the interviews (Smith et al., 2009). It was important for the findings to make sense (Miles et al., 2014) and be supported by the data and the methodological choices (Lub, 2015). As an IPA researcher, I focused on the experiences of participants and their understanding of the phenomena (Smith et al., 2009). IPA studies tend to use a comparatively smaller number of participants and involve intense accounts with details and analysis. As a reflective practice, the self-reinforcement phenomena in learning theory perceives significant changes in perceived self-efficacy based on a positive or learned experience (Bandura, 1977a). Understanding teacher-participant perceptions by retelling a lived experience brought about each experience to a reflective experience (Van Manen, 2014; van Rijswijk, et al., 2016).

I have also discussed the issue of trustworthiness and the criteria for developing a logical, traceable, and documented study. IPA study researchers do not simply collect data and characterize, they explore the viewpoints (Larkin et al., 2006) and detail individual experiences of the participants (Bainger, 2011; Symeonides & Childs, 2015). As suggested by Carlson (2010), as a responsible qualitative researcher, I offered detailed descriptions of settings, participants, data collection, and analysis procedures as a way of

making teacher accounts more credible and to show that I was diligent in my attempts to conduct respectable research. In Chapter 4, I will describe the setting of the study and the demographics of the participants, a detailed description of the data collection procedures, an analysis of the data, the evidence of trustworthiness, and the results.

Chapter 4: Results

The purpose of this study was to gain insight into the lived experiences and perceptions of elementary education teachers who taught Common Core using a KLP. I was interested in hearing their ideas and experiences in teaching strategies as they used movement for instructing their students according to the Common Core. The participants were teachers with at least 2 years of teaching experience in general elementary education who used the KLP. The following questions guided this study:

1. How did the elementary education teachers experience using the KLPs to teach the Common Core?
2. What were the perceptions of the elementary education teachers about how students learn using KLPs to teach the Common Core?

In this chapter, I describe the study settings, demographics of the participants, and data collection methods. In Chapter 4, I include the data analysis and presentation of the themes that emerged. In the last section, I give evidence of research trustworthiness

The Setting

The study occurred in the western United States. Participants were elementary GE teachers practicing in the public-school settings during the study. The participants taught in two counties, six school districts, and seven elementary public schools. Eight teachers taught in rural elementary schools, whereas two teachers taught in suburban elementary schools, and the last teacher taught in a city elementary school setting. One teacher taught at a Kindergarten through Grade 2 school, and three teachers taught at a

Grade 4 through Grade 5 school. Seven teachers taught at a Kindergarten through Grade 5 school. Eight of the 11 GE teachers taught at schools that take part in free and reduced-fee lunch programs due to high poverty rates and low socio-economic status (SES). Six GE teachers had students identified as English Language Learners (ELLs).

Demographics

Initially, 12 teachers responded to the call for participation; 11 were elementary GE teachers. One respondent was teaching in higher education, so this person was excluded from the study. Of the remaining 11 participants, nine were female, and two were male. Two participants had been teaching for 4 to 5 years, whereas nine teachers had taught 6 or more years. All participants had taught in the public-school system. Eight teachers taught in rural schools, whereas two teachers taught in suburban schools, and the last teacher taught in a city school setting. Three GE teachers taught first grade, whereas one GE teacher taught third grade. Three GE teachers taught fourth grade, and three GE teachers taught fifth grade, and the final GE teacher taught a combination third- through fifth-grade class. Each GE teacher held a bachelor's degree and either a single subject or multiple subject teaching credential. Each participant was given a pseudonym using an alphabetical system with participant one being given the pseudonym of Mr. or Mrs. A continuing to the letter K, respectively.

Participant Demographics

I acquired participant demographics (Table 1) through a Google Doc link that each participant filled out (Appendix G). Nine females and two male elementary GE teachers took part in the study. Mrs. A and Mrs. B consented to the study in May of

2016, whereas Mrs. C, Mr. D, and Mrs. E consented in August of 2016. In September of 2016, Mrs. F, Mrs. G, Mrs. H, Mrs. I, Mr. J, and Mrs. K all consented to be part of the study. I interviewed Mrs. A, Mrs. B, and Mrs. C in August of 2016, whereas I interviewed Mr. D, Mrs. E, Mrs. F, Mrs. G, Mrs. H, Mrs. I, and Mr. J in September of 2016. Mrs. K was the last interview in October of 2016.

Table 1

Participant Demographics

Participant	Years teaching	School setting	Grade taught during study	Highest level of education	Major in college	Minor in college	Credential	Training
Mrs. A	25	Suburban	First	Bachelor's degree and teaching credential	Child development	N/A	Multiple subject	One class Some workshops
Mrs. B	22	Suburban	Third	Bachelor's degree and teaching credential	Liberal studies	Spanish	BCLAD multiple subject	One class Some workshop
Mrs. C	12	Rural	Fourth	Bachelor's degree and teaching credential	Liberal studies	History	California clear multiple subject	No classes Two workshops
Mr. D	6	City	Fifth	Bachelor's degree and teaching credential	Liberal studies	N/A	Multiple subject K-8	One class
Mrs. E	5	Rural	Fourth	Bachelor's degree and teaching credential	Psychology	N/A	Multiple subject	I do not remember
Mrs. F	28	Rural	First	Bachelor's degree and teaching credential	Advertising and communication	Marketing	Multiple subject	One class Few workshops

(*table continues*)

Participant	Years teaching	School setting	Grade taught during study	Highest level of education	Major in college	Minor in college	Credential	Training
Mrs. G	18	Rural	Fifth	Bachelor's degree and teaching credential	Liberal studies	General	Multiple subject	Some classes Some workshops
Mrs. H	14	Rural	Fifth	Bachelor's degree and teaching credential	Liberal studies	None	Clear with CLAD	Some classes Some workshops
Mrs. I	11	Rural	Fourth grade combination class	Bachelor's degree and teaching credential	Child development and deaf education	N/A	Deaf ed. specialist	One class
Mr. J	19	Rural	First	Bachelor's degree and teaching credential	Physical education	N/A	Physical education	Many classes Many workshops and conferences
Mrs. K	21	Rural	Fourth	Bachelor's degree and teaching credential	Speech pathology and audiology	Art	Clear multiple subject, special day class authorization	No classes Some workshops

Note. BCLAD = Bilingual, Cross-Cultural, Language and Academic Development; CLAD = Cross-Cultural, Language and Academic Development.

Mrs. A was a female, elementary GE teacher with 25 years of teaching experience. She had previously taught kindergarten and first grade. At the time of this study, she taught a first-grade class in a rural public-school district. Mrs. A had graduated with a bachelor's degree in child development and earned a multiple subject teaching credential.

Mrs. B was a female, elementary GE teacher with 22 years of teaching experience. She had taught kindergarten, second grade, third grade, fourth grade, fifth grade, and sixth grade. At the time of the study, she taught second grade in a suburban public school. Mrs. B had graduated with a bachelor's degree in liberal studies with a minor in Spanish and had earned a multiple subject teaching credential with a Bilingual, Cross-cultural, Language and Academic Development (BCLAD) certificate.

Mrs. C was a female, elementary GE teacher with 12 years of experience and teaching fourth grade in a rural school district. She had only taught fourth grade all 12 years. Mrs. C had graduated with a bachelor's degree in liberal studies with a minor in History and had earned a clear multiple subject teaching credential.

Mr. D. was a male, elementary GE teacher with 6 years of teaching experience. He had previously taught third grade, fourth grade, fifth grade, and sixth grade. At the time of this study, he taught fifth-grade in a city school. Mr. D had graduated with a bachelor's degree in liberal studies and had earned a multiple subject teaching credential.

Mrs. E was a female, elementary GE teacher, whom had been teaching for 5 years. She taught fifth-grade in a rural school district. She had experience teaching

fourth and sixth grade. Mrs. E had graduated with a bachelor's degree in psychology and had earned a multiple subject teaching credential.

Mrs. F was a female elementary GE teacher in her 28th year of teaching. At the time of the study, she was teaching first grade in a rural school district. She had experience teaching kindergarten and first grade. She graduated with a bachelor's degree in advertising/communication with a minor in marketing and had earned a multiple subject teaching credential.

Mrs. G was a female, fifth-grade elementary GE teacher in her 18th year of teaching. She had always taught fifth grade in this rural school district. She had graduated with a bachelor's degree in liberal studies, a minor in GE, and had earned a multiple subject teaching credential.

Mrs. H was a female, elementary GE teacher in her 14th year of teaching. At the time of the study, she taught fifth grade in a rural school district. She had only taught fifth grade. Mrs. H had graduated with a bachelor's degree in liberal studies and had earned a multiple subject teaching credential with a Cross-cultural, Language and Academic Development (CLAD) certificate.

Mrs. I was a female elementary GE fourth-grade combination teacher in her 11th year. At the time of this study, she taught in a rural school district. She had taught kindergarten, first grade, second grade, third grade, fourth grade, and fifth grade. She had graduated with a bachelor's degree in child development and deaf education and earned a deaf education specialist credential.

Mr. J was a male elementary GE teacher, who taught first grade in a rural school district. He had been teaching for 19 years and had taught kindergarten, first grade, second grade, third grade, fourth grade, fifth grade, and sixth grade. He had graduated with a bachelor's degree in PE and earned a teaching credential in PE.

Mrs. K was a female elementary GE teacher in her 21st year of teaching. She taught fourth-grade in a rural school district. Previously, she had taught fourth grade, fifth grade, and sixth grade. She had graduated with a bachelor's degree in speech pathology/audiology with a minor in art and earned a clear multiple subject teaching credential with a special day class authorization.

Data Collection

In late May of 2016, after receiving IRB approval, an invitation to participate (Appendix D) was sent out via Twitter (Appendix B) and an announcement on a professional discussion board (Appendix C). A webpage gave teacher participants general information about the study and a link to complete the consent to participate (Appendix E). Participants were directed to a Google Docs link, where demographic data and personal contact information were collected, and the consent to participate was submitted (Appendix F). Each participant was contacted within one week of giving contact information. Since the IRB approval was given in late May, which is when many public elementary schools were completing the current school year, only three participants had accessed the website and consented. At that time, one of the participants was not teaching elementary GE so that participant was not contacted. This left two

participants who were contacted and interviewed at their convenience during the summer break.

In August, three participants accessed the site and consented to take part in the study. One of the participants had taught the kinesthetic lesson plan (KLP) at the end of the year, had forgotten to access the site and consent, and then completed the consent form in August. This participant was contacted and interviewed within two weeks. The remaining two participants taught a KLP in the first few weeks of the new school year.

In August, I reposted the Twitter recruitment (Appendix B) and the post on the professional discussion board (Appendix C). In September, six participants accessed the site (Appendix E and G) and consented to take part in the study (Appendix F). I interviewed five of the participants within 2 weeks of their teaching a KLP. One participant had a scheduling difficulty and was not interviewed until mid-October. All the interviews took place in person at the convenience of the participant and in a public location. I audio recorded the interviews using an iPad video app, but with no picture capability and the iPhone application *Voice memo* as a back-up. I made each participant aware that both devices were being used to record the interview. I also kept detailed notes as the participants responded to the open interview questions, to help guide myself to follow-up or second tier questions. Each interview lasted no more than one hour, and there were no follow-up interviews, as I believed I had obtained all the needed information. I shared the transcripts with the eleven participants as part of a transcript review, either in person or via email. Each participant was asked to review their interview transcripts for any errors, mistakes, or misunderstandings on my part during the

transcription process. The participants responded with three days of each of the transcripts being sent out with a return email or in person, as there were no corrections or inconsistencies in the information.

Data Analysis

The most proper model to address the research questions was the methodological approach of the IPA. IPA was an approach to understand the personal, lived experience with a commitment to open-mindedness, and to suspend and bracket off preconceptions (Smith et al., 2009). For this study, I interviewed a purposeful sample of elementary GE teachers to find their perceptions about the implementation of grade-specific and content-specific standard based resource plans as an effective teaching strategy and evidence to support the self-reinforcement and social learning theories (Bandura, 1977a). A basic qualitative inquiry with an IPA approach was chosen to help participants make sense of their experiences and their engagement within the experience (Larkin et al., 2006). Using a reflective interview of a lived experience to recall and explore details of the experience or phenomenon was the complimentary approach.

As the researcher for this study, I was responsible for recruiting the participants, conducting the interviews, and collecting, analyzing, and presenting the data. As is common with basic qualitative research studies and the IPA approach, I was the instrument for collecting data (Maxwell, 2013; Seidman, 2013; Smith et al., 2009; Van Manen, 2014). Initially, I had planned to use NVivo software to complete my coding. I had planned to use NVivo software but decided that the hours of hand coding would be more efficient and practical for me. I listened to each interview two times making added

notes on my original notes that I had taken during the interview. I did not use any coding methods at this point. The third time I transcribed my interview using *Dragon Speak Naturally*, which was a speech recognition software that turns speech into text. This provided me with a first transcript. I then listened to each interview again, creating an easier to read transcript and corrected any spelling or inaudible errors. If the transcripts were inaudible, I made that comment in notations. I implemented "jotting" (Miles et al., 2014 p. 93) or short handwritten notes within each transcript to keep mindfulness and assigned small segments of data and applied labels to them. Two weeks after each interview, a copy of the interview transcript was presented to each participant in person or via email. Each of the eleven participants either contacted me in person or via email to state that there were no corrections or added comments. Immediately after I received a confirmation about the transcript, I listened to the interviews again while reading the transcript and hand coded the interview data. I also converted my original field notes into a write-up and edited it for accuracy and bracketed words and phrases that appeared to stand out. I used multiple colored highlighters to draw attention to words and phrases.

The data analysis was then coded into two major stages as described by Saldana (2014) in the first cycle and second cycle codes. First cycle-coding is a process that allowed me to retrieve and categorize similar data chunks that were related to each research question. At times, some of the data were coded in both Research Question 1 and Research Question 2. Using In vivo coding, I began to analyze the data in a first coding method looking for words or short phrases. Multiple phrases began to stand out, not the actual words, but the same content. Terms like engaged, knowledge, real world,

community, SPARK, familiar, understanding, demonstrated, frustration, resource, knowing what you know, comfort zone, brain breaks, online resources, collaborative, confidence, all kids, all kids moving, learning concepts, onstage, learning process, confidence, not comfortable, known concepts, competitive, surprises, review, work as a group, time, visual, planning, learning activity, strategies, behaviors, student understanding, overall knowledge, differences, roles, environment, convenience, language, transitions, problem solving, quick, short to the point, lots of energy, expectations, auditory, sitting too long, need to move, helps behavior, different ways of learning, think better, learn better, they don't know that they were learning, playful learning, involved, out of their seats, space, entertaining, feeling it, embarrassed, fun, brain breaks, priority, feels good, standards, connect different subjects, training, lack of training, physical activity, mobile, sedentary, conceptualize, visualize, interactions, achieve a goal, can and can't do, independent learning, expectations, verbalize, movement development, room to grow, multitasking, communication, exposure, resourcefulness, finding information, connection to kids, lifelong skills, comfort zone, individualized instruction, finding information, easy, behaviors, grounded, modeling, practicing, thinking changed, reflection, changing, understanding student needs, spotlighting, training, uncomfortable, lack of time, beneficial, and problem solved.

During the second cycle-coding, I looked at chunks of meaning, categories, or themes and searched for reoccurring phrases. I found that highlighted words or codes were clear and categories began to emerge. It was notable that teachers used terms to describe what background and knowledge that they had to develop resources. They

wanted students to be active, engaged, and involved in the lesson. The grade level CCSS concept was a focus and taught in an interactive way. Teachers used terms to describe how they felt about using a KLP such as confident, comfortable, could have used more training, used what I had learned, and integrated what I knew best to do. The theme of getting kids out of their seat and moving to create active learners and employing the brain body connection became clear as physiological terms were used such as blood flowing, brain stimulated, bodies moving, brains activated and more were discussed. Next, the way that a teacher felt about the lesson, perceived learning, and how they checked student understanding was a part of their responses. Then the theme of knowing how important it was to move, and how teachers incorporated movement was discussed. Lastly, teachers shared how they perceived the lived, learning experience based on the knowledge that they had and shared as part of a reflection. I examined these themes to find a global interpretation of the participants lived experiences, which resulted in five important themes.

Miles et al. (2014) wrote that coding simply gets the data ready for analysis and "leads to reshaping of your perspective and of your instrumentation for the next round" (p. 93). Through the entire process, I used "jotting" (Miles et al., 2014 p. 93) or short handwritten notes in the columns. I used post-it notes to keep mindfulness and assigning small segments of data and applied labels to them.

For the next round, I used member checking as an added step to make sure that my data analysis was congruent with the lived experiences of the individual teacher by offering a compilation of their individual quotations or statements developed into

important color-coded chunks of information on a summary page. I presented each participant with the individual data page. Each teacher glanced over it and returned the document without corrections or additions.

The Five Themes

In these next sections, I will discuss the data that emerged during coding and interpretation from phrases into categories and transformed into themes. Five themes emerged:

- Teacher understanding.
- Implementing resources.
- Teacher feelings.
- Making the connection.
- Teacher beliefs and perceptions.

Pressure to teach state mandated, grade level concepts was a constant struggle for each elementary GE teacher. Through the interview process, teachers shared their lived experiences teaching the KLP. Each teacher taught a KLP that was meaningful and full of learning opportunities. Teachers used their experience and knowledge to develop a KLP that was geared toward the culture of their classroom. At times, they were more comfortable teaching a favorable and preferred activity and at other times were less confident if the activity was less familiar. Each teacher felt like they knew their students well enough to decide if an activity would be successful.

All the participating teachers talked openly about where they developed their experiences and knowledge. They also spoke of feelings and the perceptions of comfort,

confidence, and stress while teaching the KLP. Comfort and confidence came from knowledge, experience, and a willingness to step out of a comfort zone. Stress found its way into teaching if comfort and confidence was lacking, or the simple intent of the KLP was overwhelming for students. Teachers discussed the importance of knowledge about movement, knowledge about the concept, and knowing their students, as key factors in the success of planning and implementing the KLP.

Theme 1: Teacher Understanding

As part of the interview questions, I asked teachers about their experiences in preservice and in-service teaching. I asked each teacher about their experiences with past coursework, workshops, and their backgrounds in PA. If they believed that they lacked the knowledge, where did they find the resources and how were they used. I was interested to hear how they used and applied earlier knowledge, experiences, and resources to teach the KLP.

Background knowledge and experience. Background knowledge and experience influenced a teachers' ability to teach movement. If they believed movement was important, they were more likely to get their students moving. Each teacher had some coursework or experience in movement and felt confident in planning a KLP. Mrs. A, Mrs. B, Mrs. C, Mr. D, Mrs. E, Mrs. H, Mrs. I, Mr. J, and Mrs. K all said that background knowledge was crucial. Mrs. B had experienced teaching the "whole K through sixth-grade realm." Mr. D, Mrs. F, and Mrs. H referenced the importance of applying learned strategies to current classroom practices. Mrs. A, Mrs. B, Mrs. C, Mr. D, Mrs. E, Mrs. G, Mrs. H, and Mrs. K all discussed how important resources were for

motivating students to learn in different teaching conditions. The environment also played a role in the KLP as some teachers used outdoor areas, while others used only the free space in a classroom. A teacher must learn to use and teach a concept successfully in the space that they have available. Finding relevant resources to their teaching situation was important knowledge to have. The setting, the environment, and the content were all important considerations for the teachers to feel comfortable about teaching the KLP. Mrs. A, Mrs. B, Mrs. C, Mr. D, Mrs. E, Mrs. F, Mrs. G, Mrs. H, and Mrs. K often mentioned the need to be comfortable in new teaching situations. Mrs. I and Mr. J briefly mentioned comfort as an important part of implementing new strategies.

Mr. D was a kinesthetic learner, so he used his learning experiences, while Mrs. F, Mrs. G, and Mrs. I, all had coaching experience. Mrs. A, Mrs. C, and Mr. J, all had athletic experiences. Each teacher shared their background knowledge, their own personal or professional experiences, and described their current teaching environment.

Teacher background and experience prepared teachers with strategies to manage any language barriers, transitions, student behaviors, and background and knowledge of students. These strategies were important in teaching students to problem solve individually, in a small group setting, or as a class. Teachers relied on a variety of grouping strategies for student success and to prevent unwanted behaviors. Mrs. A had an odd number to divide the class in half. Mrs. B used colored groups. Mrs. G and Mrs. H used large group circles, and Mrs. K had partners work together. Mrs. C, Mrs. D, Mrs. E, and Mr. J had small groups working together for class structure and behavior management. Behavior and behavior management was mentioned by each teacher as an

important strategy to understand and employ. Implementing cooperation rather than competition, collaboration and teamwork were mentioned by teachers as positive strategies to thwart off task behavior. Mrs. G, Mrs. H, and Mrs. K all discussed the student behaviors that they saw during the lesson. Keeping students involved in the task was important, and the participant teachers shared how their knowledge and experience played a role in their expectations for themselves and for developing student expectations. There were many commonalities amongst the teacher participants as well as differences, which all were important in how each teacher experienced the KLP as individuals and as teachers as a participant group.

At the time of this study, every GE teacher had an authorized credential to teach elementary education. Some of the participants majored in Liberal Studies, while other participants had other majors. Mrs. F had a degree in advertising and communication and Mrs. I had extensive coursework childhood development specifically in teaching the GE curriculum to students who were deaf or hard of hearing. Mrs. E had a degree in psychology, and Mr. J had a degree in PE. An elementary GE teacher is responsible for students in special education who are included into the GE setting. Mr. D, Mrs. F, Mrs. I, Mr. J, and Mrs. K, all had at least one student with a disability in their classes. Mrs. K felt qualified from her teaching preparation as she shared, “if you take these three classes, that qualifies you for a special day class, or an SDC authorization”, so she had training in working with students with disabilities along with a degree in speech and Communication. Mr. D and Mrs. E were in their early stages of their teaching careers, while the other GE teachers were considered veteran teachers with 6 or more years of

teaching, with some having more than 20 years under their belt. The experience that the participating GE teachers had was vast and included coursework in teacher preparation as well as workshops or conferences.

When asked about her experience, Mrs. A did not recall taking a course in teaching a PA in her college studies. She had attended a few workshops and training in teaching movement with SPARK curriculum. She had an active background and used a variety of teaching resources and has access to PE and movement curriculum. Mrs. A primarily had taught kindergarten and first grade, with the last 8 years having taught kindergarten. This year was a loop year, which meant she moved up to a first-grade teacher and her kindergarteners looped with her for consistency in teaching.

Mrs. B recalled taking one class in her undergraduate course work that was designed for teachers to teach PE. She had attended two half-day workshops with the SPARK curriculum. Mrs. B was active in her personal life with dancing and outdoor activities. She had access to a PE and movement curriculum and often accessed the Internet for teaching ideas.

Mrs. C did not recall having any classes in her college courses but considered herself an athlete, who taught physical activities to her students. She had access to the SPARK curriculum and used it often.

Mr. D recalled taking at least one course in his undergraduate coursework but said that he used the Internet to find alternative teaching strategies for his students. He was not a very active person but admitted that he was a kinesthetic learner.

Mrs. E did not recall taking any coursework in teaching physical activities, nor had she attended any workshops. She considered herself athletic and knowledgeable in sports. She relied on curriculum and strategies that she has acquired throughout the years.

Mrs. F recalled taking at least one music in movement course in her undergraduate courses and had attended a variety of workshops that involved movement. At the time of this study, she used musical movement in her classroom and looked for new ideas.

Mrs. G recalled taking a few activity classes in her undergraduate coursework and had attended at least two workshops. She had access to the SPARK curriculum and used it on a weekly basis. She considered herself to be physically active.

Mrs. H recalled taking a class in her undergraduate course and remembered developing an activity project. At the time of this study, Mrs. H had attended at least two workshops in the last few years. She was an active person and coach. Although she had access to SPARK curriculum, she used it infrequently.

Mrs. I was required to take one class in her college coursework that dealt with teaching PA or PE and did not remember attending any workshops. Even though she did have access to the SPARK curriculum, Mrs. I relied on school specialists and programs that teach PA. She was an active person and had been a coach in youth activities.

Mr. J recalled taking many courses in his undergraduate classes. He had been active and had many responsibilities in the local district that required knowledge about

PA, fitness, and education. He was the athletic director for the small unified rural district. Much of his knowledge came from his experiences teaching and coaching.

Mrs. K remembered taking a course in her undergraduate classes but said that it was mostly about guest speakers coming in and sharing their experiences. She had attended many workshops and conferences and often had found new and innovative ideas that she applied to her current teaching position. Mrs. K had students from the special education program in her classroom and had handled changing the curriculum to fit individual needs and used SPARK to reach all students. She considered herself very active and accessed and used SPARK curriculum but also used the Internet to search for new teaching strategies.

Each teacher shared about the makeup of their school and classroom. Nine teachers taught in rural districts, while the other two taught in city or suburban schools. Teachers talked freely about Title I schools which receive free and reduced lunches for being low Socioeconomic Status (SES). Eight of the 11 GE teachers taught at schools on free and reduced lunch due to high poverty rates and low SES. Six GE teachers had students identified as English Language Learners (ELL).

Mrs. A taught in a K-3 rural school in a small district. She said that she had 25 students in her looped first-grade class. Eighty-five percent of students at this school were on free or reduced lunch, so it was considered low SES. She often taught PE and used PA in the morning or late afternoon to wake up her students and keep them moving.

Mrs. B taught in a neighboring suburban district and talked about her school as a culture of poverty. Grandparents were responsible for having raised 15% of her students.

Many of her students talk openly about family members being drug dependent, in poverty, or incarcerated. She shared that many of her students were resilient and they loved school and missed the structure of school when they return home. She tried to offer a safe and fun learning environment.

Meanwhile, Mrs. C talked about her fourth-grade class in a Title I school. Her rural school is Hispanic with about 300, fourth- and fifth-grade students only. At the time of this study, her class size was large and had fluctuated between 28-30 students.

Mr. D had a diverse population in his city school. He said that the student make-up of the school was 30% Hmong, 50% Hispanic, and 20% mixed ethnicity. His school was also low SES and received many types of funding.

Mrs. E taught in a rural, country, farming school with low SES status and with 80% of students being ELL. She had 23 students in her class, 13 boys, and ten girls. The language was a huge barrier in her class, and this made teaching difficult at times, but she said that she was up for the challenge.

Mrs. F also taught in a rural, farming community school. Her school was made up of 450 students Kindergarten through fifth-grade. She had a first-grade class of 28 students. She had one ELL student and one student that received special education services. Even though this school was rural, it was of higher income and did not qualify for Title I, although they had a high rate of poverty.

Mrs. G taught in a rural community school. Her school was a fourth- and fifth-grade primary school with 82% of students being on free and reduced lunch. Ten percent of the students were ELL. She had 31 students in her class, 16 girls, and 15 boys, with

four students being ELL. This year was her biggest class yet, as she had 26-28 students in the past.

Mrs. H also taught in a rural, low SES, Title I school. She taught math and reading to 31 students and language arts to 28 students. At the time of this study, this primary (fourth and fifth grades) school was heavily involved in the school-wide intervention, so each teacher had a different responsibility. Her class was made up of students who were Hmong, Mexican, Indian, and a mixture of other races.

Mrs. I was a more specialized teacher. She taught a fourth- grade combination class in a rural area. Students in here class were performing between first- and fourth-grade levels. There were low SES students that had low academic, multi lingual needs. Many of her students were identified as Deaf or Hard of Hearing. As part of an integrative process, students who were Deaf or Hard of Hearing were included into typically developing GE classes, but needed individualized support in a GE setting, so the class was a bit different. Mrs. I's class was not identified as a special education class, as the students were performing at grade level, only the method of teaching just needed to be changed to include a signing GE teacher and sign language interpreters. The fourth-grade combination class had a maximum of 11 students at any time. Mrs. I had students who were Hmong, Spanish, and Hindu, speaking different languages, and learning to sign.

Mr. J was one of two male teachers in the study, and he taught in a rural school in a farming community. This school had some low SES students and a high rate of poverty, and some families in the higher income brackets, so the school did not qualify

for Title I. He had taught in a few, small districts and enjoyed the rural schools. Last year he taught part time at a school with 105 total students. In his current placement, there were 80 students per grade, Kindergarten through fifth grades. He had 25 first-grade students in his class.

Mrs. K was a fourth-grade teacher in a rural school setting in a small mountain district. She had 30 students, 16 boys, and 14 girls. It was a Kindergarten through fifth-grade school with low SES, and 75% of the students were on free or reduced lunch. Her school was at capacity and did not have room for more students. At the time, she had three students in her class from the SDC class. The SDC class was a smaller special education classroom that supported students with Individualized Education Plans (IEP) and allowed modification to the curriculum and environment in the GE setting.

When talking about their early experiences, seven of the 11 elementary GE teachers had a PA or PE class in their undergraduate coursework, while the other five teachers could not remember or took musical courses. When asked about her coursework Mrs. E simply said, "I don't remember that was quite a few years ago." Other teachers remembered at least one class or part of a class. Mrs. C said, "I don't remember any classes to teach activity or PE, but I do remember taking a ballroom dance class for fun." As veteran teacher, Mrs. F recalled a music class:

> I had taken music classes at (college attended), and I went to see Ron Brown one time. He does a lot of songs that go with academics, 'penny, nickel, dime, and quarters' is a great one because we march to it. We sing, 'penny, nickel, dime'…. He didn't really talk about moving, but the music allows the movement.

Mrs. I "took one PE class as a teacher, but not as a student. I think as a teaching teacher, yeah [sic] as a teacher not a student." Mrs. H recalled her undergraduate coursework:

> I do remember I had one class I went to (college attended) and ummmm [sic] I remember it because they had us do a project where we had to teach a certain PE skill, and my group had soccer, and how to kick a ball, and we took pictures and put together in this informational booklet that we did.

Mr. D had been teaching for 6 years, in a variety of grades three through six and shared what experience he had in undergraduate school:

> Formal training in just whatever classes I received at the (college attended). I don't remember taking any classes actually, I didn't take it at (college attended), I took it at (junior college attended), and the little experience you have was teaching a 30-minute class once in a semester.

Mrs. G shared:

> I had some PE classes, I remember doing some activities, and there were all teachers in there with me, and I don't specifically remember what the class was called. But, I know at (college attended), I had a class, a whole class because I have the class packet.

Mr. J took a few PE classes, as he "was required to do so as part of my major. Some classes were in physical activity while others were in elementary development and were more movement based." Mrs. K had some classes in PE and some in PA but not when she was getting her teaching credential. She recalled, "some supplemental guest speakers coming in and talking to us." Mrs. A shared her experience when she said,

> I am sure that I took something in my childhood development education class at (college attended), but I don't remember it. I enjoy teaching PE; therefore, I seek things out to do it."

Mrs. B talked about her experience:

> I did elementary physical education class in 1980 and got my credential in 1985. That PE class was the only class geared for educators until I got trained in SPARK PE, about 5 or 6 years ago, you know that was only a half day training.

Eight of the 11 teachers had attended a workshop or conference in their teaching career. Many of the participant teachers, Mrs. A, Mrs. B, Mrs. C, Mrs. G, Mrs. H, and Mrs. K had attended a SPARK training. SPARK (2016) was a national program that offered a coordinated package of highly active curriculum, on-site staff development, extensive follow-up support, and expert selected, content-matched equipment that strives to improve the health of children (SPARK.org). Mrs. H shared her SPARK experience:

> For us, it was SPARK training for 2 years, and then we have all of the equipment. I did two one-day trainings one day each year for the 2 years. It was nice to go back and have a new trainer and some new activities and then have a refresher.

Mrs. G had also attended a SPARK training and shared:

> At our school, I wouldn't necessarily say we adopted a curriculum but, the SPARK curriculum that we have been following, I have been to two different SPARK trainings. One when we first got it, we all went to it, and it was hands on, and we participate in all the fun then the next year it was offered to some other

> teachers, and we asked if we could go to the same training again, just as a refresher course.

Mrs. K was very involved in SPARK trainings and workshops. She attended the two trainings at state conferences and brought information back to the school. She became the SPARK monitor and kept the curriculum and equipment for her school and some of the surrounding schools in her district:

> I did several SPARK trainings. I went to two different PE conferences which were the best. SPARK is the curriculum that's been developed for teachers to use, not to be teaching games or teaching just free play. I think it's a really effective tool first, especially for the people that are uncomfortable or don't know how this is for second and third graders.

Mrs. B recalled her SPARK experience "I did have a SPARK training at our school, and our school adopted The SPARK training program 4 years ago that's why did a full day training with them and I like it because there's lots of things that incorporate skills and team building and dance I like to dance. Mrs. A shared her SPARK training:

> I did have SPARK training; our school adopted SPARK PE program, probably 4 years ago, so I did a whole day training with them. I like it because there are games that incorporate skills and team building which I appreciate.

Mrs. C had attended two all-day SPARK PE trainings at a conference. "I like that the lessons are pretty laid out and help to bring lessons some flair." Mrs. I had attended a training for a PE box program,

> Where a PE teacher had put together all the lesson plans and supplies in a box, for you to teach a unit like, a concept unit, and this box traveled around to different classrooms. I think it was called the PE box program or something like that; we were trained how to use it. Mr. J had attended many conference in PE, physical activity, sport, and coaching. "I have probably been to 50 sports clinics, week-long conferences, one-day clinics that teach both physical education and physical activity.

The participating GE teachers shared not only their professional experience in coursework but as coaches and volunteers in intramurals and community organizations outside of work. Many of the GE teachers were physically active and enjoyed activities outside of the school. Mrs. G, and Mrs. H both coached intramural sports at their schools and with their own children's youth organizations. Mrs. E coached high school basketball and Mr. J coached high school baseball, softball, and basketball. Mrs. I had coached her children's sports teams on many occasions. Teachers often used their firsthand experiences of being athletic or physically active or skilled to teach a concept. Mrs. C and Mr. D had been collegiate athletes, while Mrs. G, Mrs. E, Mrs. H, and Mrs. K all worked out at their local gyms. Mrs. K had a different experience early on:

> I was a really sickly kid. I spent a lot of time in the hospital; I had to learn to walk again, learn to write again, I stopped having PE in the seventh grade. I didn't become a physical person until I was in my late 20s when I decided I was not going to be the person that the doctors told me I had to be or my family. I'm not coordinated enough, or fast enough, or smart enough, so I decided that my

> secret thing to myself was I was going to learn to kayak and I did. I gained confidence in my physical being. I get not being able to do things.

In this state, the elementary GE teacher was responsible for teaching PE in the elementary grades. In some districts, there was a PE specialist to teach added PE time. Mrs. A, Mrs. B, Mrs. C, Mrs. F, Mrs. G, Mrs. H, Mr. J, and Mrs. I worked at schools that had a PE specialist who worked with students on a weekly basis. Mr. D had a PE specialist who worked with his class every other month. Mrs. E was solely responsible for teaching PE:

> In my class, on my own, we usually do kickball, basketball, which is like kickball, but it is on the concrete unless it is too wet, ummmm [sic] dodgeball, what's that game? Wall of china, where the ball is in the middle, and they go at each other and try to get the ball past them. PE is twenty to thirty minutes a day, but I honestly don't do it. I know it's a law and it is mandated to do 100 minutes every ten days, but I just make sure that I get that right now, unfortunately. My students also run laps for PE, two to three days a week.

Mr. D discussed his daily PE program, "So every morning for 30 minutes, I take my class out and the other fifth-grade class, and we do a variety of games, three-week units. We do skills which eventually led to games." Mrs. K took an alternative approach to teaching PE:

> We should be teaching kiddos [sic]chasing and escaping, catching, and moving. These kids will never have any exposure to physically active skills. I refuse to teach soccer, refused to teach baseball, softball, or basketball because there are so

> many outlets out there and I felt like it was my responsibility to teach alternative sports and what they could be exposed to. So, I would do Frisbee golf, and we developed Frisbee golf courses in school, I had a whole hakey sack unit that I developed with another person.

Although Mrs. F had a weekly PE specialist, she shared the importance of moving:

> I don't do a formal physical education with my class because Mr. X does that. But that's why I fill in the days with, well even on days I do have, I still do it, I think it is important, to do every day, and not recess because some kids will sit in the sandbox. And not move, on the days that I have PE, I don't worry, I do it, but like today we did the bicycle song.

Gathering resources for PE and physical activities take some time to find. Elementary GE teachers often play PE for 20-30 minutes. This is different from PA as PE has state standards, while PA is just movement based. A brain break is often used as a small burst of activity to get students out of their seats for a short amount of time, usually 30 to 90 seconds. These resources were all be found online using the Internet. Mr. D often used the Google or YouTube or personal resources to get activity ideas. Many of the teachers used the Internet to access online resources like GoNoodle, Class Dojo, Brain breaks, all alternative teaching resource that used movement as a mode of learning.

The culture of the classroom and knowing the individual students was discussed by each participant. Understanding what experience each teacher brought to the culture

of a classroom was incredibly important to each of the teachers and my study. Some teachers brought little experience into a classroom of diverse learners.

Mrs. A shared that "This year I have many families who are disengaged, I prefer families that are more involved but it is, what it is." Mrs. B shared:

> We have a culture of poverty; we have a lot of kids that are foster, a good surprising number, maybe 15% are being raised by a grandparent. Recent changes in the family, because of something that is hard to deal with, drug use or prison, and it is talked about on the playground and openly in the classroom. We have hard to reach parents who feel ostracized for whatever reason, a bad experience, you know, or drug abuse, poverty, the tough lifestyle, and the cycle of welfare, struggling to make ends meet. But the kids love school. Many of the kids are sad when school breaks. There is structure, and something that they can count on and somebody cares, they can count on that.

Other teachers had great experiences, but the diversity of learners was difficult, and the KLP did not go as planned. At times, the teacher's experience was positively affected despite the diversity. Each teacher discussed the importance of knowing their students and their capabilities. Mrs. E struggled with academic language with students who were non-native speakers. Mrs. I had students who were deaf or hard of hearing, and Mrs. K and Mrs. F had students mainstreamed into their classes from the SDC class which changed the dynamics of the whole class environment. It was important to understand each student as an individual and the whole group as the culture of the classroom.

Along with the culture of the classroom, the experience that a teacher brought into the classroom was valuable, whether it was from prior coursework or workshops, or simply a willingness to try something new. Mrs. C taught fourth grade PE with a focus on cooperation and shared:

> We may dribble a ball correctly. I teach on Tuesdays and do a rotation. All month we work on one skill, such as jump rope or basketball. I try to keep them relatively rounded. A lot of times we do stretching, cross the midline, a lot of stretching with a lot of movement. My students have general knowledge and appreciation for doing it the right way; I think that is important. We also have a PE teacher; he takes them one time a week for a 50-minute block. They love tag games and like when they are all busy.

For the teachers, their background, experience, and resourcefulness contributed to the KLP and their perceptions of success. Bandura (1977a) claimed that teachers could become more confident with experience and practice, thus changing future behaviors. Experience, either personally or professionally, was important to plan and implement the KLP. Comfort and confidence in planning, teaching, and reflecting played a vital role in how teachers felt about the KLP. Another consideration was that the KLP content and movement needed to be equally motivating and one piece could not be more difficult than the other, a few teachers realized this too late. All the participating teachers planned for and carried out a KLP in a subject area that they thought would be proper for their students. In this next section, I will discuss the teachers KLP and how teachers planned for and implemented the KLP.

Theme 2: Implementing Resources

All the participating teachers shared that they taught a KLP that was important for students to learn or review and used resources that they had acquired at some point in their careers. Some teachers used resources available online, while others used previously- learned activities as a KLP. Seven teachers had attended the SPARK training, a national program that offered a coordinated package of highly active curriculum, on-site staff development, extensive follow-up support, and expert selected, content-matched equipment that strives to improve the health of children (SPARK.org, 2016). Many teachers used brain breaks such as GoNoodle, Google, or Class Dojo for ideas to get students out of their seats and to move.

Teachers shared how they planned, implemented, assessed, and reflected on the KLP experience. The amount of time that teachers took to plan varied, some just a few minutes, while others took more time to plan. Mrs. A, Mrs. B, Mr. D, and Mr. J used a variety of equipment while Mrs. D, Mrs. E, Mrs. G, and Mrs. H used no equipment at all, only the students. Mrs. I did not use activity equipment but used cooking supplies from her home and what her staff could also bring from their kitchens. The environment was also a consideration; as Mrs. I transformed her classroom into a cooking environment; while Mrs. B went into the cafeteria for open space to run. Mrs. A and Mrs. K used a large space outside, while Mrs. C, Mr. D, Mrs. E, Mrs. F, and Mr. J stayed inside the classrooms. Mrs. G and Mrs. H stepped just outside of their classrooms into a breezeway.

Planning a KLP that was standards and movement-based was also a significant factor to my study. When it came to planning, the amount of time that teachers took to plan varied, some teachers took a few minutes to plan like Mr. J (5 minutes), Mrs. K (3.2 minutes), Mrs. C (5 minutes), Mrs. E (30 seconds), Mrs. F (5 minutes), Mrs. G (5 minutes), Mrs. H (one minute), Mrs. A (10 minutes), while Mrs. B (40 minutes), Mr. D (30-45 minutes), and Mrs. I (40 minutes) took longer.

Gathering the needed equipment was also a factor as Mrs. A, Mrs. B, Mr. D, and Mr. I used a lot of equipment, such as index cards, bouncing balls, soft balls, yarn balls, hula hoops, boxes, and baskets. Meanwhile, Mrs. E, Mrs. G, and Mrs. H used no equipment at all. Mrs. I used cooking equipment, rather than active play equipment.

The environment was also a consideration, as Mrs. I created a cooking environment inside her classroom, while Mrs. B needed more room to move and used the cafeteria. Mrs. A and Mrs. K used a large outdoor space, while Mrs. C, Mr. D, Mrs. E, and Mr. J stayed inside their classrooms.

Mrs. A's KLP was aligned with the kindergarten and first grade standards in math using the concepts of estimation and greater than/less than. She often used SPARK curriculum and resources for movement and learning. Mrs. A had used yoga type activities for stretching and calming students. Mrs. A planned a lesson that tested theories, using math concepts. She took about 10 minutes to plan it, as it was built upon an earlier lesson. She went over the rules inside using a white board and carried out the lesson outside as a classroom management strategy,

> I start with them on the carpet inside because I have a whiteboard in there and I can explain what I want them to do because when we get outside, there is a certain aaaarrggh! [sic] and the kids, I don't have their attention as much as I need to.

After the lesson, she realized that she could take the whiteboard outside, and had never considered using the whiteboard as an added resource for visual learners. Mrs. A had gathered at least 50 yarn balls for her activity and made sure that there was a safe place to play. Referring to her KLP, Mrs. A said,

> I want to continue to use some sort of resource to where I can pull, you know, I do feel like SPARK has some great games, but I need more practice in making sure that I am pulling in math concepts and even language concepts into what I am doing, because it just intensifies what we are doing in the classroom more, so why not take the extra time to plan it that way.

Mrs. A recalled her students were particularly cooperative and worked hard to help each other out. She attributed this to creating an atmosphere where students engaged in team building. During her KLP the students noticed that one of the teams had more people on it, and that team always won. Mrs. A used this as a learning opportunity and had students brainstorm why that might be possible and switched the teams around constantly, even though there were an odd number of students, making for uneven teams. Mrs. A went over the rules inside the classroom where there were fewer distractions, and then she moved outside for student to perform the activity.

Mrs. B was active in her personal life with dancing and outdoor activities. She had access to a PE and movement curriculum and often accessed the Internet for teaching ideas. Mrs. B used GoNoodle each morning as a morning song and stretch along with brain breaks throughout the day. Her KLP was aligned with the ELA standards for second-grade students using spelling words. Mrs. B used a SPARK activity for her KLP that involved using individual letters to spell out a word in a relay race. The lesson took about 40 minutes to prepare, as there were some cutting and printing on cards. She also had to gather some supplies that needed to be carried into the cafeteria. She was positive in her planning and introduction by saying,

> We're gonna [sic] have a fun game that you are gonna [sic] love that it involves moving your feet. Anytime I do that that they get smiles on their faces and moving your feet so that you can ace your spelling test.

The students were tested later in the week for the words that they spelled out as a group. The activity began as a cooperative relay race but soon turned into an all-out competition with students from other teams showing poor sportsmanship skills. She realized that she should have discussed the class expectations so that each team would have been in a cooperative learning environment rather than competing against each other. Mrs. B discussed the movement to combat unwanted behaviors:

> I deal with behaviors in the classroom because of kids not following the rules, of sitting in their darn seat and falling out of their chair, and are not doing it on purpose. So, I think that anytime I can bring movement of any kind and get them up whether it is jumping across a piece of tape on the floor or just moving to a

different seat playing those scoot games, it's going to mean for more kids involved in the learning process.

Mrs. C had access to the SPARK curriculum and had used it often. She relied on the stretching lessons, as students stood right up next to their chair and moved as a group to a teacher prompt. Her KLP was aligned with Math using the money for fourth-grade standards. She enjoyed her KLP. She used words and denominations of money to teach her students the values of the currency. She felt that it was "age appropriate and I had enough time, and equipment to teach the concept." It took about 5 minutes to plan. Her students worked together to combine currency and come up with answers throughout the room. Whether they were correct or incorrect depended on where they would go next in the room. Mrs. C watched her students work together, and they were self- and peer-correcting without any arguments. She said, "I was trying to see if their adding and grouping, they helped each other, not having a paper in front of them they had to do mental calculations, all the group members got along, I was amazed." She went on to say, "Even when a student had added up the money amount incorrectly, another student offered to help." She was amazed that the students tried to use larger denominations than she had expected, when counting the money, and she was impressed with their willingness "to go big."

Mr. D used Google on the Internet to find alternative teaching strategies. He found activities that were fun and creative to get his students moving with songs about science. Mr. D aligned his KLP with math standards using volume and estimation and used a lead-up activity to teach his KLP on estimation and volume. He said,

> For instance, our first unit was about area and volume. Volume is a pretty hard concept to teach kids so we started off with how many balls can fit on half of the room if we threw them, and that went to estimating how many they think were [sic] out there and we gathered them and put them into different[sic] one was the bucket, one was a box and they had to figure out which one was more purely visual and then we switched. Okay so now let's take the box which was way bigger, and it looks like there were fewer balls and then we poured it into the same buckets and then the kids realized that it held actually held more volume than the bucket.

His KLP mimicked an indoor snowball fight using small, soft balls that he had previously bought to "play adult hungry, hungry, hippo" (a childhood board game, that is now full-sized movement based activity). For this activity, the students had to estimate which side of the room had the most balls when the music stopped. As mentioned before, Mr. D noticed that his students "took an opportunity to use strategies to win the game." The students' purposefully hoarded balls, waited for the music to go off, and then "unloaded them onto the opponent's side of the room." He believed this was a good strategy because he did not include or exclude this as part of the rules. He was surprised both in his student's ability to use scientific language to answer questions and the acquired strategies. Mr. D took about 30 minutes to plan, as he needed to acquire equipment and use a small space. Mr. D noticed that his students took an opportunity to use strategies to win the game. He saw students hoard balls until the last minute, and then they dumped them on the other side.

Mrs. E relied on curriculum and strategies that she had acquired over the years. She used ice breakers and brain breaks weekly, to get the blood flowing and activities where students mimicked her at least once an hour. She used math and ELA for academic language and numerical order. Mrs. E believed that every lesson had an important concept. She believed that instructions should be short and to the point. Students lined up according to their chronological age, had to consider their year, month, and day, and had to use language and math to carry out the task. She had quite a few of ELL with some students knowing little English, so the task was a bit difficult. Mrs. E said that it took about "one minute to plan it and one minute to explain" the KLP. The students were to line up according to their ages, unbeknownst to them, this would include the month, day, and year that they were born. At first, the students all agreed that they were 9-years-old, but did not see a difference between the month and year. She challenged them to figure it out, and one student did, asking the other students what month that they were born in, and what day. She went on to say,

> Their listening skills need to improve, and what I think that they might get because a lot of English learners do this to you (*she made a face with a wrinkled nose) and just stare, they want to do the right thing, but they really don't know. I have known that for a while. It's harder for them to communicate. I have seven English Language Learners and I am not saying every English Language Learner is low, but I will get fourth graders that come to me from Mexico, it is hard on them.

Mrs. F had used musical movement in her classroom and looked for new ideas. She said that she did a lot of turn taking so that students copied her movements or challenged them to choose a new movement, in a "Simon Says" type of movement. She also used Class Dojo for ideas to get students moving. She used ELA, prepositional concepts, and directional concepts that first-grade students should be able to understand and demonstrate. She shared:

> I think music and movement really helps with concepts. It incorporates a lot of the different ways of learning, kinesthetic, and all of the different modalities because not everyone learns the same way. I think music and movement solidify it and they don't even know they are learning.

Mrs. F used movement regularly, so she planned her KLP quickly and effortlessly. She used movement concepts such as "fast, slow, high, low, and directional concepts, right and left" to get students to move their bodies to music and a song. Mrs. F believed that crossing the midline and using bilateral movement was an important strategy to learn how to read. If students were unable to cross the midline, it was much more difficult for them to read across a page, "when kids can't cross the midline, it is like tracking across a page, it's very important, and kids that struggle with that crossing the midline usually struggle with academics." She believed that moving to music built confidence in her students. Her KLP was related to literature (ELA) with important learning concepts that related to a story about a tortoise and a hare, that involved perseverance and simply moving fast or slow to get a job done. Mrs. F tried to think proactively and used

movement with songs to help with behaviors. She was certain that if students were moving, they did not have time to misbehave. She said:

> We talk about our personal space. I have to teach them about their personal space though in the beginning because is they cross the midline and hit someone next to you then…. we talk about personal space and how it is important and being safe at school. Once that is taught they spread around the room and once set the boundaries they do well.

Mrs. G often used brain breaks she had learned throughout the years a few times a week to "get their brains back into focus during math when they have attention issues. I want them moving around to get refocused. I let them take walks, or a jog break, or stand up and stretch." Mrs. G accessed the SPARK curriculum on occasion. Her KLP was linked to academic language in ELA, specifically spelling, and took about five minutes to plan. Mrs. G had "one student who couldn't do squats, he was on crutches," and another unwanted behavior as one student was unwilling to take part. She wondered if the student was embarrassed or unable to use his body to spell out a word.

Mrs. H had access to SPARK curriculum and used it infrequently, but used brain breaks often. She shared:

> There are a couple that I have kind of really stuck with, so I feel comfortable, I have this PowerPoint on my computer, it is kind of like a brain break of California, and we go down to LA and jump ski, and then we ski in the mountains, I feel like I sort of created this brain break that I have used over and over.

Mrs. G and Mrs. H both used large motor movement to spell out weekly spelling words for language development in ELA. Both teachers had mentioned that the KLP was an extension of an activity where students seated at their desks, used their finger to draw out the spelling word in the air. Mrs. G took about 5 minutes to plan her KLP, while Mrs. H thought about it for one minute. Mrs. G and Mrs. H both wanted to use full body movements that crossed the midline vertically and horizontally with large arms and bending legs. Mrs. G shared how fun her KLP was when she said,

> Well, I had fun, it was more fun for me than standing up in front doing the spelling words or writing your spelling words five times each. Students in my class worked their bodies at different speed, levels, and pathways trying to print out a letter in the air using their arms to spell.

Sometimes, spelling words were difficult and extremely challenging, Mrs. H said that this KLP was:

> Just a strategy to use to study their words. So many times, fifth-graders are told to study, but they don't know how- writing five times each? It's just a different way, and I wanted to get them moving…. How can I incorporate this into the class and not waste Language Arts time? Not that it is wasting time, but to make it more thematic.

Mrs. H also found that two students were not willing to be part of the lesson, one had "limp arms" when doing the activity. She thought that this student was looking to get a reaction from the other students, and when she did not get it, she complied and began

doing the movement. The other student could not keep up, and he may have felt left out, so he just gave up. She said that both students showed horrible attitudes. She wondered if they were uncomfortable or sore for some reason. Although Mrs. H was impressed with her students overall as she mentioned that "there are always a couple of kids that don't want to participate, I was surprised that there weren't more that didn't' want to participate, I was actually pleased that the whole class was doing it."

Although Mrs. I did have access to the SPARK curriculum, she sometimes relied on other school specialists and programs to teach PA. She browsed the Internet and television to be more of a creative teacher. Mrs. I had her students switch tables and stations often to keep blood flowing, something that she felt was important. She chose a cooking challenge for her KLP, so cooking terms (ELA) and measurement math facts were incorporated into her KLP. She took a great deal of time to plan and had to work with staff to explain the classroom expectations. A lot of supplies, cooking utensils, small appliances, condiments, tableware, cookware, these things had to be acquired from multiple sites. She went on to say,

> I took a good 22 hours just to think of the logistics of where I needed to put things to be safe but provide a challenge. They had to be placed in multiple places rather than one specific place. I wanted them to make decisions quickly and have all the materials set up in the classroom, yet in actuality, the classroom had to be broken down every day to clean up. I did not let the kids help me set up I didn't want them to have access so that it was always a secret

Mrs. I wanted her students to learn measurement in a functional way, and she had great confidence in her ability to teach the KLP and in her student's ability to learn. She was aware that "when some classrooms cook, they each add one ingredient to a bowl and take turns stirring, that is not an effective strategy for learning." The Chop Challenge was a success and students mastered the kitchen setting and the math concepts in a meaningful and kinesthetic way. Mrs. I had planned for behaviors and prepared her students with lessons in safety and cleanliness when cooking, she recalled, "I had some people concerned about the knives, and I think kids learn best by doing, but the students did well around all the cooking units and cutlery."

Much of Mr. J's knowledge came from his experiences teaching and coaching. Mr. J believed that kids need to keep moving and used a prompt or directions often to get kids out of their seat, get their wiggles out and then sit back down. Space was continually an issue as he shared,

> I usually plan for a couple of weeks in advance, if we go outside it obviously depends on the weather situation, and I have some videos tapes that you can use inside of your classroom for, you know, rainy day activities, it's just movement, and its expressions from them, you know, make an airplane, it is movement, but not need a lot of room to move.

Mr. J used a recycled math KLP to teach first-grade students about basic geometry. He used a human *Tic-tac-toe* format (another childhood board game), as students had to underhand throw a beanbag into a square. They were divided into the red or blue team. Each team had to strategize and decide where to throw the beanbag (in diagonal,

horizontal, or vertical lines). A kinesthetic strategy was used, where students in the squares blocked a throw when they stood up and made their bodies large to prevent the beanbag from going into their square or ducked by forming a ball or laid flat in the square to allow access to the individual squares around them. Mr. J had taught this lesson before and took very little time to plan and setup, but took the time to stop and instruct the first-grade students along the way.

Mrs. K had students from the special education program in her classroom and changed the curriculum to fit individual needs. She had lots of experience working with students who needed special considerations in the teaching environment. She shared one story from the past:

> (Student) was an IEP kid who struggled with matters, a lot of frustration, tolerance, cried all the time. We just developed all of these signals that he was at green, yellow, red. He didn't have to talk to me to leave the room; he had a routine. We tried several different things, like he wasn't just going to run, just going to run a lap, he had to do something strenuous! He couldn't just go run by the courts and come back; he needed to do zigzag. I didn't know what the hell he was talking about, but we just kept doing it until we figured out worked.

She considered herself active and had access to SPARK curriculum but also used the Internet to search for new teaching strategies. Mrs. K used a lot of SPARK ice breakers to keep her kids from becoming too lethargic and had learned a lot of techniques from conferences. Mrs. K aligned her KLP with math using multiplication review for her students. She chose a KLP that used group juggling and math. She found the planning to

be a bit harder than she thought, however, was comfortable with each skill independently. She modeled it, and students practiced it individually, but when it came time for group juggling, students became confused, and the activity was too difficult. She had "planned for it just to be an alternate way to do math facts." Her students voiced that, "they didn't feel like it was what we were supposed to be doing, this isn't learning, and it isn't PE, learning isn't physical." Mrs. K questioned her students often, by asking students about their feelings about their bodies and how to manage them, she believed that,

> When you are frustrated, you can't think, and when your body is tight, how does your body feel? How does your brain think? You need to train your body and your mind …. It is your responsibility to know your learning style to stay focused.

Although, Mrs. K realized that her students became confused when they began to go off task and have unwanted behaviors. Her KLP turned out to be too difficult for them and she talked about the unanticipated struggle with her KLP, "It was so hard when they had to activate their brains and their body as they began to chuck the beanbags at each other rather than juggle as an activity that wasn't as focused would have been better."

Each elementary GE teacher taught a standards-based lesson using movement in a KLP. Some teachers used online resources, while others used previously learned games. A few teachers shared how difficult it was to find reliable resources. They each discussed how the planned to incorporate the CCSS concept that they believed was important for student learning. Some found that planning activities that were less competitive and more cooperative were more difficult than they imagined because

cooperative turned into competitive. Other teachers were confident and comfortable teaching their KLP and did not notice a competitive edge.

For many elementary GE teachers, it is difficult to plan for activities that every student finds success. Many times, difficult, or hard to manage behaviors occur when students are bored, confused, challenged too much, or find the activity to be too easy and are not challenged enough (Mahar et al., 2006; Moreau, 2015; Ratey, 2008). The data from Themes One and Two melded into Theme Three as the teachers shared their feelings on how they planned, implemented, assessed, and reflected upon the KLP experience.

Theme 3: Teacher Feelings

As I analyzed the data, it was clear that the teachers had different feelings about teaching the KLP. Based on my interview questions, teachers shared their feelings about teaching the KLP and discussed terms such as pressure, stress, comfort, and confidence. Each elementary GE teacher felt immense pressure to pack state-mandated, standards-based lessons into the typical school day. Mrs. E said, "I have zero time at any time to even teach social studies and science right now." Mrs. H shared that "A lot of times teachers are so busy and so structured in what you are doing, so it's kind of nice to go, Oh! I need to do more."

Pressure, stress, comfort, and confidence. The elementary GE teachers shared their feelings about the pressure and stress of teaching, and how comfortable and confident they were in teaching the KLP. For my study comfortability was defined as having the knowledge and experience to teach an activity in a relaxed environment and

be at ease with teaching ability. Confidence was also discussed and how important it was to be confident in teaching movement. Confidence was defined as the ability to teach a movement concept regardless of knowledge, training, or experience.

The stress came from feelings that emerged as the elementary GE teachers shared about their ability to teach movement. Mrs. B shared:

> You know, I am not very comfortable, it's not my area of expertise because I haven't been trained. Certainly, I know you have to be safe in every area of the school day, I know it in my brain and in my heart. I think I need a lot of training. I need help.

Using class time wisely and efficiently was crucial to each participating GE teacher, and they could share their feelings about this experience. Mrs. H shared:

> I wanted them to follow me and do something in the classroom, so what I did was, a long time ago, I was watching Kelly Rippa and Michael, and ummm[sic], I was thinking she was always in super shape, one of the things that she said was that she took a medicine ball and then she would come up with different words, that would motivate her like *vacation* and she would spell out her words using her whole body. And so, I was like, how can I incorporate this into the class, and you know, not was Language Arts time, not that its' wasting, but you know how to incorporate it and make it more thematic. So, our students, we have this new curriculum, and it's very difficult in the sense that the spelling words are extremely challenging. I think that they are more adult spelling words and not

> fifth-grade spelling level, so we have to practice our spelling words, and I got them moving.

Using class time in an efficient manner can be difficult at times. Finding a way to reach all learners with differing learning styles can be difficult as well, in any setting. There can be many barriers to teaching students in an elementary GE class, including teaching to a diverse class of ELL, students in special education, underperforming students, and challenging students that are performing at grade level. For many elementary teachers struggle with inclusive teaching practices which make teaching difficult and sometimes stressful.

Mrs. A said that she was comfortable in teaching movement, but wanted more practice. Although, it can be stressful to take the classroom outside and apply real-world situations, Mrs. A expressed:

> I got a little frustrated with myself, it's like why didn't I think of this before, of course I should be taking a whiteboard out and turning into more of academic of what we are doing in the classroom, so, but then I forgive myself, it's the life of a teacher, and you know you are just trying to survive but, um [sic], it just made me realize I should just take it out with me.

Mrs. B shared that she was not comfortable teaching exercise concepts, but tried to incorporate spelling into a cooperative relay race. When her KLP became too competitive and less cooperative, students began to argue, and she had to adapt the activity so that there was not a winning part and she was no longer comfortable with the

outcome of the lesson. Mrs. B felt the need to get more physical in her lessons and wanted more training.

Mrs. C felt comfortable in her KLP. She said that she knew her class well and what they can do. She often uses cooperative lessons to limit competitiveness among students. She teaches concepts that she is comfortable in teaching. She preferred group work and designed her KLP around math concepts with money. She did state that she should incorporate more movement into math, as "it looks pretty easy to do."

Even though Mr. D was a new teacher, he was comfortable in teaching movement and was not embarrassed by looking silly. In fact, he liked to use musical songs to learn some concepts, but students were usually seated at their desks. Mr. D was very confident teaching a math lesson using estimation and volume in a bombardment game. The KLP involved small, lightweight plastic balls that were used in an indoor snowball fight, and he was confident that he explained a few rules and students stayed on task and followed directions without any injuries.

Mrs. E said that she was a bit exasperated, she stated that "there is almost too much curriculum to teach in one school day. The pressure of trying to teach so many things in such a short amount of time, there isn't enough time for me to get to social science." Mrs. E said that she would be more comfortable with more training. She shared that she was confident in her ability to teach an activity, but she did not have success. Mrs. E recalled that her KLP involved unfamiliar language to her students and they needed to cooperate, but was unclear on what that looked like. She shared "I had done an icebreaker thing, and one of the icebreaker activities was to get them talking to

each other and figure out what month that they were born, that they had to do it in groups or teams and help each other." She resisted helping them and asked that they problem solve, but felt as though they could have been more successful with better instruction.

> I think every lesson has an important concept; you need to listen to the person who is talking to you, you need to understand, listening communicating, solving problems on your own, any single lesson that you come across is going to have so much more cooperation than you think when you watch your kids.

She was confident in her ability to teach the KLP, but when her students had some difficulty, she tried to have them problem solve. She felt she had explained it clearly and they needed to cooperate and work together to complete the task. She redirected her frustrations and said that their listening skills needed to improve.

Mrs. F believed it was important to incorporate movement every day when she said, "because a lot of people don't naturally do things like that and it's so important for kids, it helps with behavior helps with engagement.

For Mrs. F, it was natural. She believed, "Kids that don't' have confidence can build confidence." She was confident in her ability to use movement to learn, and her KLP was exciting. Her students did songs by five and help them remember it as you "put it to movement, you put it music, it's fun, the kids go around singing it, and it reaches kids in all modalities, and it's fun." But at the same time, they were working on crossing the midline and moving in personal space. Mrs. F knew her students had learned the concept when "they have to go up to the math chart and point on the number line and do it themselves."

Mrs. G also recognized that movement was important and was something that she needed to be thinking about or adding into her classroom. She was comfortable in her lesson. Although her students had the traditional PE twice a week, as an active person, she likes to do familiar activities and keep her students moving. She was confident that her students would do well in her ELA KLP, as they drew words with their arms and bodies. They had done this activity before at their desks, so they too were comfortable with the KLP. But this time,

> We got into a big circle. I had them imagine that they were holding a tennis ball out in front of them and then we took just five of the spelling words at a time and we used actually used our whole body to spell the spelling word and they had to repeat after me, okay we are going to spell the word Beseech, so we started out with the B and used our whole body to do a deep squat and start the letter.

Mrs. G noticed something interesting about her students that students moved like they write, "like if it was a C some kids would start at the bottom and some kids started at the top, why didn't they all start at the top?"

Mrs. H relied on her SPARK training and used these types of activities often. She felt "really good" teaching her KLP and wanted to get her kids moving in language arts. At the time spelling was a challenge and this would be another way to learn spelling words, using their whole body. "we are gonna [sic] clasp our hands out in front and make as big as motions as possible, not just stand there and do little movements, and really accent every letter." She used her KLP as a strategy to review the spelling words and was comfortable and confident. Students used their whole body to squat low, and

reach high and wide to draw letters with both arms perpendicular to the ground. Although she said that comfortable was a redundant word, because of all the squatting associated with the letters, she was not "comfortable the next day" and needed to work out more before doing it again. She admitted, "they were having fun, that we don't' usually go outside for language arts, and act out our spelling, so it was fun."

Mrs. I found that her students became more cooperative and competitive and worked well together during her KLP, even though it was not sports related, it was cooking related. She said that "it was a fantastic opportunity to learn sportsmanship and play against somebody that is your friend and experience loss and be a gracious winner." Mrs. I was confident in her students' ability to do a cooking challenge using hot plates, microwaves, knives, and edible materials. She had viewed the Chop Challenge television show on a network station and believed that her students could learn how mental and physical cooking could be as well as working within a time limit. She was confident that her students would be responsible and learn important concepts in a real-life experience and be safe within the classroom setting:

> I knew my students well enough to know that they could handle this and we had adult staff behind the cooking station in case something got out of hand, but of course, it didn't. I was confident in my ability to teach this …. We felt like the sky is the limit, we can do this.

Mr. J did not mind being silly and was comfortable teaching movement. He had confidence since he had played this activity with students before. He takes more time to go over the instructions, especially with younger students, or students who have never

played this activity before. He will stop and explain as he needs to, but he makes suggestions and the students follow his lead. Smiling, he said, "I enjoy seeing them progress and with better communication comes more willingness, and with more willingness comes faster tossing and more time to play." Sometimes he adds music so that students who were not tossing were dancing, that way all students were moving. Mr. J said that, "when student understanding goes up my confidence goes up, and I believe that they were learning."

Mrs. K also believed that PA skills were important. She said that "Students have to have a system to deal with that feeling and they don't have any… We don't teach kids enough about where their body is and how it affects their mind." Mrs. K had not always been comfortable teaching some concepts but tried hard to step outside of her comfort zone, and even though she was confident in her ability to teach an activity, she did not have success. Mrs. K wanted to teach her students that it was okay to try and fail, and said,

> I felt fine; I wanted to try, I didn't have a lot of time to try something new, I knew how to do group juggling, I knew how to explain the math facts, I knew I could model it, I was fine. I feel like there are kids that need it said to them, shown to them, exampled to them. You have to find a way for students to find some success, otherwise, you have kids saying I can't do it.

Mrs. K mentioned that she had planned to review multiplication facts while group juggling. She questioned her choice of the KLP and was mistaken as she explained,

> I knew I needed something that they felt fairly comfortable with, but the lesson was rushed, and the students were not successful. I wanted something that everybody would be multiplicatively successful. Because I didn't' want it to be that…. Juggling was hard, and the math was hard! It was not what I wanted!

If a teacher had success teaching an activity earlier, they were likely to teach that activity again. Teachers felt competent with knowledge, experience, materials, KLP, class dynamics, and had a willingness to do something different. Teacher feelings were identified as pressure or stress, comfort, and confidence, which were all important components to perceived teacher and student success. The less stress a teacher felt, the more comfortable and confident he or she was. These elements were uniquely coupled with teaching practices and student success (Carr, 2016). Many of the GE teachers said that they if they lacked the time, space, or equipment they were less confident and the key to their success was knowing their students. If a teacher experienced success, they were more likely to teach that activity again. Teachers shared that having the background knowledge and experience to teach an activity in a relaxed environment helped them more comfortable and confident in their teaching ability creating a link between experience and feeling.

Theme 4: Making the Connection

All the participating teachers discussed the importance of the brain body connection. As part of data analysis, I examined the highlighted codes (words or short phrases) and decided that some codes were mentioned repeatedly while others had the same meaning or intention but were used differently. For example, each teacher

mentioned phrases that connected the body to the mind forming the mind body connection. The teachers used physiological terms for the body, such as *blood flowing, heart pumping, circulating, brains thinking, and stimulating the mind* and connected this with student learning. It became clear that each teacher had an opinion about getting kids moving to activate parts of their brain. When talking about the importance of a KLP teachers referred to these physiological terms connected to the movement and essential for learning. The teachers reflected upon the KLP and talked about student engagement and how learning was measured during the KLP. A teacher's account of what students did and said was part of the reflection and teachers recalled how they knew their students were learning.

Brain body connection. As discussed in the extensive literature review in Chapter 2, the research showed a strong correlation between the brain and body forming a brain body connection (Agostinho, 2015; Brain Gym International, 2003; Castelli et al., 2015; CDC, 2010; Correa-Burrows et al., 2014; de Greeff et al., 2016a; de Geeff et al., 2016b; de Greeff et al., 2014; Hillman et al., 2014; Lee & Tomporowski, 2016; Lengel & Kuczala, 2010; Mullender-Wijnsma et al., 2016; Mullender□Wijnsma et al., 2015; Posadzki et al., 2010; Ratey, 2008; Trost, 2009; Vazou et al., 2012). I interviewed teachers who strongly believed that a connection existed, even if they did not know about the literature surrounding the theory. They each believed that it was important for students to move, they even made references to themselves needing to move when in training or meetings. With what little knowledge and experience that they may have had, they understood that movement in the classroom was incredibly important for learning.

Mrs. A believed that academics and PA were connected. Children need to move. She believed that many times learning occurs in the classroom, but how were students supposed to learn how to apply it in real world situations. Using a KLP that she learned from SPARK was one way to connect academics with the physical being and applying learned knowledge in a fun way. She thought it was "neat to use symbols in real world applications" and student can make the connections.

Mrs. B commented that when students move more often, their test scores go up. She believed in a strong brain/body connection, and she even recalled important Finnish research about the brain body connection when she talked about herself:

> I need to get physical in more of my lessons…. Everybody knows in Finland, the education, the educators there figured out that more playtime means a better day for kids. They are going to see, well the stakeholders want test scores up, well guess what? They added more recess, and kids' movement and the scores went up.

Mrs. C believed that students needed to move to think. During the day, she did a lot of stretching, crossing the midline and a lot of moving. She mentioned it was like "group engineering" and went on to say,

> While the lesson was going on I was walking around, rotating through, and watching the leaders; they needed a bit of redirection. I thought that the class would argue with the leader, I thought that they would get frustrated early, but they played fair, and that was important for each leader.

She used movement as a spiral review, a strategy that used previously learned techniques and reviewed in an unusual way. She acknowledged to herself, "I need to put more into math lessons, it was easy to incorporate, and I already had the supplies."

Mr. D admitted that his thinking had changed a bit and that he saw the benefits of movement while learning. While he taught his KLP, he realized that he did do a lot of movement in his class, but that was because he was a kinesthetic learner, and liked to move. He said that he was more willing to use more music and movement learning activities, and admitted it was hard to bring students back around after such an activity. He plans to incorporate movement more often. Mr. D discussed one difficulty with his KLP:

> After all that excitement to have them come back together so that we could have a quick conversation, it's hard to bring them back when they know, especially, once I tell them we are going to do this again, that on their mind, fresh on their mind.

Mrs. E understood that movement was critical to get the blood flowing, wake up because brains start to "zone out." She used jumping jacks when they were falling asleep and tried to get them out of their seats once every hour. She was adamant that "sitting for long periods was not healthy."

Mrs. F was a staunch supporter of moving around the classroom to learn. Mrs. F also used, "movement and music to transition from one activity to another or to another place in the room …. We always use movement to transition." She was confident in her knowledge about the brain body connection and believed that,

> Kids need to move to be successful and get their blood moving, we talk about heartrate and make a motion with our hands how our heart beats. It is important to get out wiggles and energy. It gets the blood going and the heart pumping. Kids get antsy if they sit on the rug too long …. Movement is important in learning new concepts. Movement helps with reading and tracking. It helps stimulate memory. Sometimes kids don't even know they are learning when they are moving.

Mrs. G used a reflective transition activity as she shared:

> As they walked back in, I said if you want to share a one-word description of how that lesson was how it was to produce spelling that way let me know, and students wrote out words to describe the activity… they wrote the words, hard, busy, complicated, busy, fun, fun, energizing, weird, fun, hot, tiring, not PE, and boring.

Mrs. H imagined that learning could be cloaked in fun, as she admitted, "Many times, a kid doesn't know how to do a squat, but if they are squatting to do a spelling word and they don't know they are squatting." Mrs. H agreed when she expressed:

> Anytime that you can connect different subjects, it's kind of like killing two birds with one stone, you know, it's just more beneficial for the kids. I think that their little brains and little bodies need to move around, they can't always just sit there for an hour or more.

Mrs. I believed that academics and PA were also connected when she said, "In everything we do, there is a time frame, and for things to happen, you know, so when they can conceptualize it, and think about it, and then they can apply it in so many other areas."

She discussed the importance of fourth-graders moving in her class compared to other classes when she said:

> That having them up, out of their chairs, moving around was so much better than sitting at a desk and reading a recipe and then us sitting around a table and passing a bowl…. It was probably one of the most fun things I have ever watched students do. Like I really tried to let them take the lead. Students were required to move about the classroom from the pantry, to the cooking station, to the chopping station, to the sink, and all in a timely manner.

Mrs. I also commented that she was surprised that many of the students who tend to be on the clumsy side, were quick and agile. Mrs. G likened movement to coffee.

> Movement is like a cup of coffee for kids; it gets their blood moving and helps with attention issues …. Having said that I know it's important and something that I always need to be thinking or adding into my classroom.

For her KLP she challenged her students to:

> Think about what the letter looked like so that they could use their body, so hopefully it stuck in their minds. I want to make learning engaging and fun…. I know it's important and it's something that I don't do it enough. I can always improve, and I found this was an easy way to incorporate the spelling review.

Mr. J said that he used a lot of activities to teach movement concepts and had limited standing around. He challenged his students with *what happens if* and worked to grow minds and create independent learners. His kids learned by constantly moving, they needed to run, stretch, and play fair, incorporate teamwork, and sportsmanship.

> In first grade, I am generally still teaching, I'll see little things and I'll bring them up. Early when we are just starting in a unit, I will stop the game and explain it to everybody, but as we move further into it, I back off and make gentle subtle suggestions, so that they become independent learners.

Mrs. K discussed the connection when she commented about how students learn today, "I think kid's brains work differently now, I think that they need more stimulus. I think they also need to know there's times when it's not about entertainment, it's not about being active, it's cerebral and that's okay." I asked, "Why is that important?" she responded:

> Not all of [sic] the things we do is about entertainment, sometimes it is about training our brains, sometimes it's about moving our bodies, sometimes it's about doing it at the same time, and sometimes it's just about quieting, all of these things that get in the way of learning.

Mrs. K. used movement daily; she said: "I talk to them about how that it activates their brain, and what parts of their brain are activated."

The movement was important when it was clear, as Mrs. F and Mrs. G both asked their students to spell out vocabulary words with their bodies. Another teacher, Mrs. F believed that students could learn, even when learning was disguised in a song. Student engagement was an important concept as it allowed teachers to assess student knowledge, student understanding, and participation in a functioning, learning environment.

Student engagement. Student engagement allowed teachers to assess student knowledge, student understanding, and participation in the learning environment. It was

ideal to have all students engaged, although not always possible, as some students become disengaged for several reasons. The material was too easy, too hard, too quick, or too boring. Sometimes students just did not want to be a participant physically, mentally, socially, or emotionally, and teachers had to be creative to involve all students. When students were not involved, the teacher intervened to find a solution. Mrs. A, Mrs. B, Mrs. C, Mr. D, Mrs. F, Mrs. H, Mrs. I, and Mrs. K all mentioned the term student engagement and described how it looked. Mrs. A saw her students performing object control skills such as throwing underhand, rolling, and catching. Mrs. B saw her students take part in a relay using locomotor skills and yelling out commands to teammates. She also saw that students had difficulty with spelling words, and watched some students put down another student for not knowing the answer. Mrs. C watched her students travel around the classroom and challenged other students to decide denominations. Mr. D was pleasantly surprised as he described how his students took part in a snowball fight, yet believed that his students were more engaged than usual in this activity. He said, "Collectively, it wasn't one person saying do this, it was three to four people on each team hoarding the balls to throw at the last minute." When asked if he was surprised at the behavior of his students, he said, "A little, if the ball threw [sic] and hit someone in the head I was surprised how eager they were to say, check on the other student, that was positive."

Mrs. G and Mrs. H both saw students spell out letters with their bodies, but mentioned that a few students were not engaged as they made a choice to sit out or

become off task. This was due to a medical excuse, as one student was on crutches, another could not perform a squat, and another was just not interested.

Similarly, Mrs. I thought that she had put pressure on individual students to create a product. The product was compared against another student's product, and this would have been too great of demand, but she had been wrong:

> The students were cordial to one another and they finished within the time frame, which was important, they had a finished product. It is important when we have to produce something be somewhere, to do something, within a timeframe. They were up and moving, alert and engaged the entire time, not one of them threw in the towel. I think it was fun; they were engaged, there were full-bodied engaged like their minds, their bodies, they were moving and had a focus. As long as everyone is engaged; you don't always have everyone engaged in a worksheet in spelling or a teacher directed lesson, with this lesson, I was really comfortable.

Mrs. H's students were "amped up" when they returned. She needed to have a better way to transition back inside the classroom. She acknowledged that transitions needed to be planned for and executed properly. Too much transition time can add up and take away from instructional time. Mr. D also had a frustration with the transition, "After all that excitement to come back together and have a quick conversation, it's always hard to bring them back."

Mrs. K initially saw student engagement, but as her KLP progressed she realized that students became frustrated and student engagement plunged and off task behavior increased when students stopped juggling and began throwing.

> It's interesting; it became throwing rather than juggling… I should have remembered to talk about a juggle toss first, how you toss it, how you work with a partner, and when you are doing a throwing and catching, it is different, it is much more of a dance.

Student engagement was incredibly important to teachers to watch for student learning, student behavior, and student frustration.

Spotlighting. During the interviews, three GE teachers Mrs. B., Mrs. F, and Mrs. K discussed the term spotlighting. Spotlighting was when a student stood out for the wrong reason and was put on display. When students sat at their desks, it was not obvious when they did not understand something. If movement showed understanding, it was much clearer. I had not considered any negative situations in student engagement. Initially, I had my ideas of how student engagement looked. As a teacher of PE and Adapted PE, I felt that if all students were moving in a PE environment, what looked like chaos to someone else, was organized chaos to me; I never considered that a student would feel put on the spot to perform. To me, student engagement was when students were on task and showed proper behavior while learning, that was what I wanted my students to be doing. However, I learned that student engagement was important, but it had to be planned for accordingly. Mrs. F understood that her students had individualized learning styles and referred to a story about a tortoise and a hare often. She said that some students lacked confidence, were reluctant to do something, and needed reassurance, "Not everybody learns the same way, I think music and movement help solidifies learning, they don't even know they are learning." A few teachers

believed this, Mrs. K said:

> I know from my personal experience if you don't believe you can, it's really really [sic] hard to try, and I think, it is hard to try it physically than it is to try it academically, because everybody sees you and everyone…. I mean you could fake it on your paper, but when you're physical, and you're out here, people see it.

Mrs. G discussed how one student "who was not happy, he tends to be emotional and has some issues on his own, so I think in the one moment that either he couldn't keep up or felt out of place, he kind of gave up." Mrs. K struggled with the idea of spotlighting students on an emotional level; she went on to share a concept that I had never considered, she fervently explained:

> If you are already uncomfortable, being willing to put yourself out there especially, especially I feel it is so, I think I feel more about this, I thought more about this as with my fifth- and sixth-graders, especially because they are such in that place of needing to be invisible, you know that pre-teen. I have to be like everybody else, so if you put them in a position where you're asking them to perform at a certain level everybody can see, you're asking them to standout, and that already is a challenge, and I think you really have to be sensitive to how you are setting up that situation, especially for those, those more middle years when that is even more important.

When discussing student engagement, it was clear that many times cooperative activities were much easier than competitive activities, regardless how much planning

took place, as Mrs. B was surprised by one of her students who had a hard time losing, she shared:

> This competition thing is hard; some students said put downs, you know they are on stage and ground rules are important from day one. Kids have to feel safe; there can't be putdowns. Kids who were already feeling insecure about the spelling and kids who couldn't get two words right on the spelling and now are onstage, you want to make sure that they ground rules are established. You can't say anything that will hurt somebody.

Mrs. B believed that it took more effort to be creative and more time to search out a lesson that was different. It had to be more appealing for kids to hear the spelling words, and think "oh, this is going to be fun." She often heard the negative, "I can't do that" from those who lacked self-confidence, but believed "As long as everyone feels safe, I can put more time and do more of this type of activity." Mrs. H constantly checked in with her students and shared that, "I could tell which ones got student and I had them try to guess my letter. I didn't want them to be embarrassed."

Sitting too long. Each of the eleven teachers mentioned that they believed that their students sat in their desks too much. Supported by the literature review in Chapter 2, excessive sitting has become a detriment to learning and associated with hazardous health effects and affects the social and mental well-being of students (Castelli et al., 2014; Corder et al., 2015; Hamilton et al., 2008; Janssen & LeBlanc, 2010; Singh et al., 2012; Syväoja et al., 2013; Väistö, et al., 2014). The elementary GE teachers shared their thoughts on this archaic practice. I asked Mrs. E about her students sitting too long at a

desk, and she asked, “Have you ever sat in a chair before for longer than 20 minutes?” I answered that I had and then asked, “Why do you think that this is important?” and she answered:

> Well, it is hard for me to do it and we expect students to. I have to get my blood flowing, wake up your brain dead after a certain point as an adult, being at a meeting or training you zone out, so picture a nine-year-old sitting there, for much longer than 20 minutes. I got to move. I can’t sit that long.

Mrs. B believed that feeling like a winner was important as she said, “When all kids are getting their heart rate up, all kids feel like winners.” Likewise, Mrs. F agreed, “First-graders get antsy sitting on the rug too long. I don’t like sitting in a class all day long, sitting in a class…I get those kids who have more energy.” Mrs. F used the same comparison of sitting as an adult to students when she mentioned:

> The uppers grades sit there so long they lose focus…. As an adult, I sit in a class, and I am like, I am totally not into this, if you get up and move, it helps you learn, so it works for all grades.

Mrs. F reduced sitting in her classroom by counting by 5s and 10s with hopping and jumping and called it math PE. Similarly, Mrs. G remembered why she did not want her students to sit in their seats all day either:

> My dad was a PE teacher, and then I played various sports my entire life, and so I have grown up being really active. I know the importance of bringing exercise into the classroom …. It gets their blood moving, it gets them active, um, [sic]so they’re not just sitting in their seats all day long.

Mrs. H insisted that "Their little brains and their little bodies need to move around, they can't just sit there for an hour." I then asked Mrs. H "Why do you believe that?" She responded:

> Because, I was a kid once, and I don't want to be sitting for an hour, and just learning. I want my kids to want to learn. They are going to want to learn if it's fun and they're engaged, and they can't always be engaged if they are learning about correlative conjunctions and then comparing and contrasting, you have to break it up and make it like you know, different.

Mrs. K acknowledged that some of her kids can sit longer, but that it is not necessarily a good thing as she has changed her teaching to address the learning styles of her students,

> I do also let my kids, I don't know if this is even related, but I do let my kids turn their chairs around and sit backward if they need to. Because, I feel like, you're, like some kids just need to be more grounded, some kids need to lay on the ground, they need to have their (her hands slammed down on the table) touching everything. And if that's how they need to learn, that's fine, and I have always said that I feel like it's your responsibility to know, that's your learning style. And I know right now there are going to be some of you who go and lay under your desk and try to work, but it's not going to work for all of you.

With a background in PE, Mr. J has his kids moving and often:

> My kids are constantly moving, I mean, it's either running laps, standing up, walking around, you know, there is a lot of different things that we do because if

> they sit too much, they are just too squirrely, we need them to move …. It's just movement and not needing a lot of room in those movements.

Theme 5: Teacher Beliefs and Perceptions

Within the context of student learning, all the elementary GE teachers shared their beliefs and perceptions about how they knew students learned Common Core concepts of the KLP.

Teacher beliefs. All the elementary GE teacher shared their responses of what worked well and why, which formed their teacher belief about using the KLP to teach the CCSS. It was interesting that each elementary GE teacher realized that movement was an important part of the school day, but had not realized how simple it was to add movement to learning, such as:

Mr. J said, "There is always room to growth in anything you do and if you don't accept that you can grow, then I think you just go the wrong direction for your kids."

I asked Mr. J, "Are you always confident in teaching subjects and concepts that you know or are you willing to teach some concepts that you don't know?" Mr. J responded:

> That is the learning process, if you are not willing to at least try it doesn't mean you have to implement things exactly, and you know, that's the biggest thing for me is, that you may like a certain thing, but you may adapt it to where it fits your personality better, but it still holds the same basic concept that you've been taught I think that is a great way to go when you're learning new stuff.

I asked Mr. D, "Has your thinking or understanding of teaching movement concepts changed?" Mr. D answered, "I feel like I incorporate it quite often, but I definitely see the benefits of it, so I would incorporate it more than I do currently."

Mrs. C felt that her lesson was "pretty cool and was really fun" and she went on to say,

> I need to put more into math games, and this would be easy to incorporate, I already have the supplies. I thought it was really short, about 5-10 minutes long, with no preparation and it was a good review for the next day.

Mrs. G was simple in her response and realized that planning and implementing a KLP was not very difficult when she said, "I need to do this, put this as a priority this was easy now" while Mrs. H when talking about her KLP answered that she "really liked it." Mrs. I stated that her lesson was enjoyable for all, "I think it was fun, they were engaged, they were full-bodied engaged like their minds, their bodies, they were moving and had a focus. They felt a lot of pressure but good pressure, yeah [sic], they had fun." Although Mrs. K declared:

> You can't fricking wing it! I mean, let me rephrase that, it is very difficult to just say I am going to do this and go do it. It wasn't enough time for me to do this and do a good job.

I asked Mrs. K, "Has the process of thinking or the process of understanding while using movement to teach changed, is it beneficial?" She responded:

> It is beneficial! It has to happen; I think it is crucial. Kids brains work differently now; I think they need more stimulus. I feel like there are kids that need it said to them, shown to them, exampled to them.

Mrs. A shared:

> I feel like the onslaught of standards in these last couple years, everything's [sic] new, and I don't, I am not familiar. I feel like I know what a first grader should be able to do and what I want them to get to be able to do, but I am not aware of all standards.

Teachers often check for understanding by seeing the behavior, listening to student interactions, and asking choral or individual questions as part of ongoing assessments. These GE teachers shared what they heard their students saying, what they saw their students doing, and how they believed their students learned the CCSS as they used the KLP.

Kinesthetic lesson plan. Each teacher had found and taught a KLP of their choice. The KLP was aligned with the CCSS. Mrs. A's KLP was aligned with the Kindergarten and First-grade standards in math using estimation and greater than/less than. She mentioned:

> Kids were familiar with it, but I added extra this time, I took out a whiteboard, and we did greater than and less than using the symbols. And, you know I couldn't have done it at beginning of the year because they didn't have the background knowledge.

Mrs. B's KLP was aligned with the ELA standards for second-grade students

using spelling words. She divided her class into four colored groups.

> I spray painted clothes pins to match their team color. On index cards, three and one-half by five-inch index cards, we wrote in all capital letters of the alphabet and extras of the commonly used vowels, and you know, like R, S, N, L, T, and look at your spelling lists and look at the ones that reoccur, so that they are easy to find, I had the kids help me make them

Mrs. C's KLP was aligned with Math using the money for fourth-grade standards and decided that it "was age appropriate and I had the time and equipment." Mr. D aligned his KLP with fifth-grade math standards using volume and estimation and was "very comfortable teaching the math concept…. And students were more engaged than usual." Mrs. E used math and ELA for academic language and numerical order for first-graders by "explaining it in the classroom first, and then go outside, and then I just said, go." Mrs. F used ELA and prepositional concepts and directional concepts that first-grade students should be able to understand and prove. Mrs. G's KLP was linked to academic language in ELA, specifically "very difficult" spelling words for the fifth grade. Mrs. H also used the fifth-grade ELA standards and weekly spelling words for her KLP. Mrs. I used cooking terms (ELA) and measurement math facts in her KLP for her combination fourth-graders. Mr. J used first-grade (and beyond) geometry math facts for his KLP and Mrs. K aligned her KLP with fourth-grade math using multiplication review.

For this study, the elementary GE teacher taught a KLP and decided how he or she would assess student learning. Teachers communicated what they saw and heard

their students doing, and gave insight on how they perceived and measured student success. Regarding doing something different, Mrs. B said it best:

> I wanted to choose a lesson and get it ready, that I could use for spelling that would help them, ummm [sic] to get their "yaya's" out, learn, have fun, and make a positive connection to spelling, and I could use it at any grade level this for big kids…. You could; you could pull words out of your science, you know, any kind of academic words.

Teacher perceptions. Teacher perceptions were transformed when they made improvements such as changes in their classroom practices with the use of new materials or even an unfamiliar approach (Guskey, 2002). Teacher perceptions could change with new teaching practices primarily after they gain evidence of improvements in student learning. Each teacher discussed the importance of knowing how their students learned and what they were capable of learning. Teacher perceptions about how students learned and responded verbally and visually to the KLP was an essential element to this study. Listening to student verbal interactions was just one way of checking for understanding. Mrs. A stated that she did not recall hearing any students whine or complain, she heard students ask each other questions. Mrs. B heard cheering, while Mrs. C heard her students saying numbers aloud, helping each other, grouping aloud, and trying to perform mental calculations, and self-correcting. Mr. D heard his students discussing, listening for the start, and stop of music, laughter, and displaying a lot of voicing "good job" to each other. He mentioned,

> I heard discussions amongst the kids of when they should throw the balls, based on the time the music was being played. I heard a lot of laughter, good job, positive reinforcements from the class. I saw kids smiling and engaged and hoarding of the balls, with masses of amounts of balls being thrown at the last second. I was worried that the competition was bigger, but it didn't' matter if there were winners or losers, they all had a good time. They were more engaged than usual.

Mrs. E heard her students yelling out their ages and asking each other what month and what day they were born. Mrs. F heard laughing, singing, and giggling and she said

> Kids that, I feel like, kids who don't have a lot of confidence sometimes at first are really reluctant to do that, and now they are having fun. I think it helps build their confidence, and the culture of they don't have to be a great dancer to be able to do this and I feel good about it….and when I see some goes really, who's really, (she moves her feet fast) I go whoa! look at those feet go, see how fast you are and the next person trying to go fast.

Mrs. H heard students sound out the actual letters, grunting, and saw one student with limp arms and rolled her eyes. Mrs. G conceded that it was quiet as they had to listen to letters. Mrs. I heard a lot of self-speech. Mr. J heard his students tell each other "throw here, stand here, stand there, toss it in the orange hoop", he heard them working together. Mrs. K heard very little math fact terminology; instead, she heard her students making obnoxious noises, grunts, and groans, as they tried juggling.

The GE teachers recalled what they saw their students doing. They described individual student movement and the motor movement of the entire group. Mrs. A saw her students perform an underhand throw, how they moved, and were engaged. She was concerned with developing a lesson where:

> In my brain, adapting how am I going to adapt this game to be successful, so that all kids were participating, all kids were successful getting their heart rate up, all kids were feeling like winners… instead of writing the words three times each.

Mrs. B saw her students smile, move, jump, run, and be engaged with other students.

Mrs. C saw her students form circles and triangles. Mr. D witnessed smiles, engagement, hoarding balls, and following the rules and he said, "I see communication, and you almost see that the people in the line and the people in the hoops start working together sometimes the one knows what they want the other one to do." Mrs. E saw her students moving around each person, get in front of or behind another, talk, and physically gesture. Mrs. F saw her students clap, cross the midline, raise hands high, look at peers, look at her, and dance. Mrs. G also saw her students smiling, laughing, looking around and moving their bodies to create the letters, as part of her KLP. She recalled,

> They were engaged in what we were doing, because they had to listen, especially since they were spelling the letter (sic), one letter at a time, so they had to listen to the person in front of them to make sure that they were prepared to spell the letter correctly, and then I could tell so I would step in…. if they weren't sure, they

> could look at me, but I was spelling with capitals…. they had to really think about what the letter looked like in order to make it with their body so that it would stick in their mind.

Mrs. H saw most of her students squatting, twisting, bending, and drawing the letters out in front of them. She talked about the inclusiveness of the activity,

> I feel like a lot of the kids were participating and the thing about other spelling games that we play, sometimes it is just one person at a time, and everybody is listening, with this game everybody is participating all the time at the same time.

With the Chop Challenge KLP, Mrs. I saw eating, panicking, sense of urgency, rushing around, and students holding a fist up. Mr. J saw his students communicating using physical cues, like pointing, clapping, high-fiving, and jumping. Mrs. K recalled seeing her students in a different light; she did not know what they were saying or doing as they were spread out across the blacktop.

Each GE teacher recalled how they measured student learning outcomes. Here are some of the responses given by the participants:

Mrs. A said, "By asking questions aloud and using choral responses."

Mrs. B saw, "Students spell words right, but if they were spelled wrong team members would correct it.

Mrs. C mentioned, "They weren't doing easy denominations, they were more difficult, and they were being successful. They were all engaged (more than usual) and repetitive. I do post talk, and that is how I usually check for learning."

Mr. D commented, “When they did the estimation, they were pretty close, they were using terms that related to previous knowledge, such as volume and mass, and the second time around they were closer to being correct.”

Mrs. E shared, “I went down the line of each group and realized that there were some mistakes. Good thing I physically checked.”

Mrs. F said, “I know they were learning because I could see their movements and hear their voices, they were looking at me and their friends.”

Mrs. G stated, “They were copying me and their friends, I could see them forming the letter at the bottom squatting and moving their hands out in front.

Mrs. H was surprised that her class was taking part, “There are always a couple of kids that don’t want to participate, I was surprised that more didn’t want to participate.”

Mrs. I commented, “They finished in time frame, it was probably one of the most fun things I have ever watched students do. Like I really tried, I let them lead.”

Mr. J emphasized, “I think they are learning, I see them progress …. Sometimes it is hard for them to see the diagonal or the vertical or horizontal lines from their position. They need their teammates to shout it out.”

Mrs. K was not excited about what her students did. She believed that her students did not learn anything from her KLP, as it was too hard, the wrong time of day, the wrong time of year, the wrong activity. She blamed herself, “I didn’t give good enough instruction, the kids that wanted to try it for me and the other kids thought it was dumb.”

To understand the lived experience that each teacher brought into the culture of a classroom was incredibly important to the teachers and my study. A few teachers brought little experience into a classroom of diverse learners. Other teachers had a great experience, but the diversity of learners was difficult. Mrs. B discussed one student that she had a tough time forgetting,

> I had one little guy who cried. It is engrained in my brain that it can't be about who wins. He wants to be the best speller. If his team lets him down, he just feels just moved to tears, and that just slows everybody down.

At times the KLP did not go as the teacher had planned, yet the teacher's experience had a positive influence despite the diversity. Each teacher discussed the importance of knowing their students and how they learned and what they were capable of learning. Mrs. B was optimistic and believed that "when all kids are getting their heart rates up, all kids feel like winners."

Mrs. G said it best, "I always want to make learning more engaging and fun and they seemed to enjoy the concept." Mrs. B also talked about engagement and fun by saying,

> you know once you get kids moving, you know, I think you are going to have less behavior problems and they were, you know, playing with words, and letters as a group, you know, I think it went well, I can adapt, you know, as long as everybody is engaged and its positive. You don't always have everyone engaged in a, you know, worksheet on spelling or a teacher directed lesson that they just aren't into, this one I was really comfortable with…I think learning together, is

gonna [sic]not only support the kids who don't feel as confident, but everybody is gonna [sic]learn something from someone else.

Many of the GE teachers said that they if they lacked the time, space, or equipment they were less confident and the key to their success was knowing their students. If a teacher experienced success, they were more likely to teach that activity again. Teachers shared that having the background knowledge and experience to teach an activity in a relaxed environment helped them more comfortable and confident in their teaching ability creating a link between the experience and their feelings and perceptions. Mrs. H commented that "It was pretty easy…. Trying to keep that in the back of your mind, okay, if I add activity, it's just another way to review…. And it was more fun for me, than sitting up in front reviewing the spelling words." So, it turns out that learning can be fun; learning occurs when students are moving.

Evidence of Trustworthiness

Trustworthiness was the criteria for judging the qualitative inquiry to determine significance and establish validity (Schwandt, 2015). Qualitative studies need criteria for trustworthiness in credibility (internal validity), transferability, dependability, and confirmability. Validity was traditionally defined "As the degree to which the indicators or variables of a research concept are made measurable, accurately represent that concept" (Lub, 2015, p. 2). I used the methodological literature to link research to evaluation and to emphasize or introduce different paradigms. Lub (2015) discussed the importance of validity in qualitative research as a lens of united perspectives of the researcher, the participant, and the external readers. An alternative view of validity

emerged as a persuasively written account with a deeper understanding with context- rich and meaningful descriptions (Miles et al., 2014).

Credibility

I verified credibility by using triangulation of data in the form of the interview, the written reflection (or as some teachers said, "mindful cataloging"), journaling, transcript review, and member checking. Triangulation is important in phenomenological studies for validity as researchers collect information from multiple perspectives using a range of participants and settings (Lub, 2015; Maxwell, 2013; Smith et al., 2009). Lub (2015) argued that "triangulation, in particular, reduces chance associations and biases due to specific methods used, allowing for greater confidence in interpretations" (p. 5). Developing a greater understanding of a qualitative study included using descriptive, interpretive, theoretical, and evaluative data for deeper meaning (Miles et al., 2014).

Finally, I shared the data with the participants and checked for accuracy with member checking. I used member checking to corroborate or verify the findings for trustworthiness and credibility (Seidman, 2013) and assured that the data were valid (Schwandt, 2015). Member checking was an effective strategy that was used for trustworthiness to help look for evidence to challenge the data analysis outcomes and thwart potential threats. Member checking allowed the participants to assess the credibility of my account; and decrease the chances of misinterpretations from the data (Lub, 2015). Practices such as transcript review and member checking helped to create valid and reliable data.

Transferability

Participant's ability achieved transferability to reconstruct the lived experiences with rich descriptions in their words, rather than to simply remember or recall the event within the analysis (Seidman, 2013). Thick descriptions were constructed in richly detailed accounts of the participants within their settings to include the experiences and emotions in a fair manner (Guba & Lincoln, 1981; Lub, 2015). I used transferability for findings to be congruent, connected to prior theory, and applicable in comparable settings (Miles et al., 2014). I described the participants, the settings, and the processes in detail for comparability with samples in future studies.

Dependability

Dependability and confirmability were shown by keeping detailed, notes, drafts, and journals that set up the credibility of the researcher and the findings from the threat of potential biases. This was discussed with reflexivity. Reflexivity considered that the "researcher is part of the social world and he or she studies, and can't avoid either influencing this or being influenced by it" (Maxwell, 2013, p. 90). When conclusions were confirmed by different data sources, the results were more credible and valid (Lub, 2015) and resonated to other individuals, settings, and situations (Miles et al., 2014). I collected the data in this study across a full range of settings, contexts, subjects, and participants as suggested by the research questions.

Confirmability

Confirmability was used for "relative neutrality and reasonable freedom from unacknowledged research bias" (Miles et al., 2014, p. 310). In my study, I detailed the

assemblages of data collection, analysis, display, and conclusions that were drawn. Just as important as the procedures, the "researcher has been explicit and as self-aware as possible about personal assumptions, values and biases, and affective states – and how they may have come into play during the study" (Miles et al., 2014, p. 312). As the researcher, the trustworthiness of this qualitative study was dependent on my credibility and the rich, thick descriptions that helped to facilitate transferability, paired with the triangulation of data that left an exhaustive trail (Merriam & Tisdell, 2016).

The Results

In this section I discuss the findings of the study that was organized by the two research questions that were outlined in Chapters 1 and 3. The first research question examined the elementary education teachers' experiences and feelings using a KLP. The teachers openly shared their thoughts and feelings about a KLP and how it was a strategy to get students moving and learning. As discussed in Chapter 2, the extensive research supported the belief that students can learn while moving and movement helped a student's ability to learn (Ahamed et al., 2007; Ardoy et al., 2014; Bartholomew & Jowers, 2011; Brusseau & Hannon, 2015; Castelli et al., 2014; Castelli et al., 2015; Cobb et al., 1975; Mahar et al., 2006; Ratey, 2005; Sattelmair & Ratey, 2009; Trost, 2009). Additionally, researchers have established that teacher experience, understanding, confidence, and comfort can positively influence learning and is part of an alternative learning strategy (Bandura, 1993; Bandura 1977a; Benes, et al., 2016; Carr, 2016; Erwin, et al., 2011a, Erwin et al., 2011b; Finn & McInnis, 2011; Garner, 1983; Goh et al., 2014; Goh et al, 2013; Guskey, 2002; Prashnig, 2004; Reid et al., 2005; Rose & Meyer, 2006;

Roy & Carter, 2013; Seidman, 2013; Stylianou et al., 2015). All the teachers had some experience, background, or knowledge to teach a movement concept and found a resource to develop a KLP.

Research Question 1. How did the elementary education teacher experience using the KLPs to teach the Common Core?

Theme 1: Teacher Understanding

I was interested in hearing how different teachers used their prior experience and knowledge to find or develop KLPs. Teachers shared their experiences from their teacher preparation courses; six of the eleven elementary GE teachers recalled taking a course in PE or PA in their undergraduate coursework. Mrs. A, Mrs. C, and Mrs. E could not recall a course but might have taken one. Mrs. B took an elementary PE class for teachers. Mr. D took a course in PA at a junior college. Mrs. F remembered taking a music concepts class. Mrs. G had developed a unit plan in soccer for some activity course. Mrs. H took at least one class during her undergraduate class, but had difficulty remembering any of the curricula and relied on SPARK. Mrs. I took a course as a teacher, but not as a student. Mr. J took many courses in PE and PA and relied on his coaching ability to develop a variety of lessons for movement. Mrs. K could not recall college courses, but had attended many workshops and conferences in the past.

Understanding what experiences each teacher brought to the culture of a classroom was incredibly important to each of the teachers and my study. Each teacher had some coursework or experience in movement as pre-service or as in-service teachers, and felt confident in planning a KLP. Teacher background and experience prepared

teachers with strategies to manage any language barriers, transitions, student behaviors, student backgrounds, and knowledge of students. These strategies were important in to teach students to problem solve individually, in a small group, or class. The participants also shared their personal and professional experiences outside of the classroom and helped in developing strategies to teach to diverse learners. As in-service teachers, Mrs. A, Mrs. B, Mrs. C, Mrs. G, Mrs. H, and Mrs. K had attended a SPARK workshop and access to the SPARK curriculum. Mrs. I had access to some resources but relied on outside support services for individualized student needs. Mrs. B used brain breaks early and often to get her students moving.

Seven of the 11 elementary GE teachers had a PA or PE class in their early experiences in undergraduate coursework. For many teachers, the SPARK workshops and curriculum were an excellent resource, while other teachers discussed educational online websites that focused on PA and interactive learning were discussed. Interestingly, every teacher mentioned using a resource such as a brain break, whether it was an Internet resource such as Class Dojo, GoNoodle, music, or a short one-minute activity from Google or SPARK to get students out of their seats and moving. Finding resources that included PA was an important part of the teaching the KLP.

Theme 2: Implementing Resources

Another common theme that developed from Research Question 1 was the use of resources in the development and implementation of the KLP. Strategies included using resources to plan and implement the KLP, student engagement, and behavior

management. Each teacher taught a CCSS concept that they felt was important for students to learn, but chose an alternative way to teach the concept.

Kinesthetic learning plan. Mrs. A planned a lesson that tested theories, using math concepts. Mrs. B used a SPARK activity for her KLP that involved using individual letters to spell out a word in a relay race. Mrs. C used words and denominations of money to teach her students the values of the currency. Mr. D used a variety of lead-up activities to teach his KLP on estimation and volume. Mrs. E used language and math to carry out the task. She had quite a few ELL's with some students knowing very little English, so the task was a bit difficult. Mrs. F used movement concepts such as fast, slow, high, low, and directional concepts, right and left to get students to move their bodies moving and related to literature Mrs. G and Mrs. H both used large motor movement to spell out weekly spelling words for ELA. Mrs. I chose a cooking challenge in a kitchen setting for students to be engaged and learn math concepts in a meaningful and kinesthetic way. Mr. J used a math KLP to teach first-grade students about basic geometry. Mrs. K chose a KLP that used group juggling and math. Six of the GE teachers used movement to teach grade level math concepts to their students, while five of the GE teachers chose a KLP that incorporated movement and standards in ELA for their students**.**

Resources. Teachers gathered resources from workshops, conferences, or online media. Teachers often used the internet and each other to find resources. Each teacher aligned their KLP to the CCSS. Four teachers used SPARK, while the others used the Internet to find resources. In fact, two teachers found their KLP online, while four of the

teachers used a KLP that they learned from a SPARK workshop. Four of the teachers had seen the KLP taught before, while two had taught it before, and one teacher saw a television show and was inspired.

Behavior. As with any lesson in an elementary classroom, behavior management was important. As the students sat quietly in their seats, it was easy to watch over the entire classroom to keep them quiet and on task, but a KLP got students out of their seats and moving, so behavior management was an area that was discussed and became a category of student engagement. Behaviors often occur during unstructured or non-direct teaching times. Mrs. G, Mr. D, and Mrs. K discussed that transitions were difficult for a few students and resulted in some unwanted behaviors after the KLP. Mrs. B, Mrs. E, and Mrs. K found that students became frustrated because of directions or the activity itself, although Mrs. C and Mr. D found that their students showed proper behavior, even displaying surprising behavior of cooperation and teamwork. Mrs. I had planned for behaviors but was a little surprised that her students did exceptionally well around all the cooking units and cutlery. Unfortunately, Mrs. H had two students with "horrible attitudes" (Personal communication, September 22, 2016) who were looking for attention (which was typical), but did not get it from the other students. Students were well-behaved during the KLP, stayed on task, followed directions, and worked independently of constant teacher directions or demands.

Theme 3: Teacher Feelings

Elementary teachers feel incredible pressure to plan for instructional time, transition time, and daily assessments. The burden is heavy at times, and the pressure can

be incredible, but teachers should be creative to teach to a vast audience of learners. Adding to the load, teachers are also forced to deal with a combination of state mandated testing and performance pay. The stress that a teacher felt was also a consideration of my study.

Pressure, stress, comfort, and confidence. I wanted to know how teachers felt about using KLPs to teach an important concept. Considering that some teachers lacked the knowledge or experience to be assured success, the risk of disappointment was also a possibility. As teachers reflected on their KLP to use movement to learn, they willingly shared how pressure and stress played a role. For Mrs. A, pressure was self -imposed, "I got a little frustrated with myself.… But then I forgive myself; it's the life of a teacher" (Personal communication, August 7, 2016). Mrs. E said that she felt stressed as "There isn't enough time for me to get to social science" (Personal communication September 29, 2017). Ms. B felt obligated to get physical in her lessons. Mrs. F believed it was important to incorporate movement every day. Mrs. G knew that movement was "something that I always need to be thinking about or adding into my classroom" (Personal communication, September 22, 2016). Mrs. K believed that PA was important for students and "we don't teach kids enough about where their body is and how it affects their mind" (Personal communication October 19, 2016). Stress and pressure were feelings that were negatively associated with teaching the KLP while discussing comfort and confidence had a more positive response.

Comfort and confidence were incredibly important to the experiences of the GE teachers. Comfortability was defined as having the knowledge and experience to teach

an activity in a relaxed environment and be at ease with teaching ability. Confidence was defined as the ability to teach a movement concept regardless of knowledge, training, or experience.

Mrs. A said that she was comfortable in teaching movement, but wanted more practice. Mrs. B said that she was not always comfortable teaching exercise concepts. When it became too competitive and less cooperative, her students began to argue she was no longer comfortable with the outcome of the lesson. Mrs. B and Mrs. E both said that they would have been comfortable with more training.

Mr. D and Mr. J were both comfortable in teaching movement. Mrs. K had not always been comfortable teaching some concepts, but stepped outside of her comfort zone and believed she had failed. She believed that there was a deeper lesson about trying and failing as she recalled:

> I felt fine, I wanted to try…. I knew how to explain the math facts, I knew I could model it, I was fine; I feel like there are kids that need it said to them, shown to them, exampled to them. You have to find a way for students to find some success; otherwise you have kids saying I can't do it (Personal communication October 19, 2016).

Mrs. I found that her students were competitive and cooperative and worked well together, even though it was not sports related, it was cooking activity. She was confident in her students' ability to do a real cooking challenge. She was confident that her students would be responsible and learn important concepts in a real-life experience and be safe within the classroom setting. "I knew my students well enough to know that

they could handle this …. We felt like the sky's the limit, we can do this." (Personal communication September 20, 2016).

Each teacher taught a KLP that was meaningful and full of learning, but competition and cooperation played major factors in perceived success. Mrs. E was confident in her ability to teach the KLP but her students had difficulty. She used unfamiliar language, and she felt as though they could have been more successful with better instruction. Although she believed that it was their listening skills that needed to improve. Mrs. E argued that teachers needed more training. Mrs. E and Mrs. K both shared that they were confident in their ability to teach an activity, but did not have success. Mrs. K's students reviewed multiplication facts while group juggling, but her lesson was rushed, and students were not successful admitting that juggling and math were hard.

Each of the eleven teachers said that they were comfortable teaching a familiar activity and if it was successful, they were more likely to teach that activity again. A KLP often took experience, planning, instructional time, and resources. With 181 years of teaching experience altogether, the GE teacher group described their personal background knowledge and experience and their feelings about teaching the KLP. Each participant used rich, thick descriptions about their lived experience related to Research Question 1.

Research Question 2. What were the perceptions of the elementary education teachers about how students learn using KLPs to teach the Common Core?

Theme 4: Making the Connection

Making the Connection involved a teacher's understanding of how the brain connects with the body and how students need to move. The perceptions of how students learned was also a way to connect teacher with their students and to make content meaningful and fun, all of which related to Research Question 2.

Brain body connection. The prior research on the brain body connection and the benefits of movement aligned with the beliefs of the participating GE teachers (Agostinho, 2015; Brain Gym International, 2003; Castelli et al., 2015; CDC, 2010; Hillman et al., 2014; Lengel & Kuczala, 2010; Mullender□Wijnsma et al., 2015; Posadzki et al., 2010; Ratey, 2008; Trost, 2009). In the extensive literature review in Chapter 2, there were many documented studies and projects worldwide about physical movement and AA (Castelli et al., 2015; CDC, 2010; Correa-Burrows et al., 2014; de Greeff et al., 2016a; de Geeff et al., 2016b; de Greeff et al., 2014; Lee & Tomporowski, 2016; Mullender-Wijnsma et al., 2015; Trost, 2009).

Mrs. A, Mrs. B, Mrs. F, Mrs. H, and Mrs. K all used the term brain body connection. Other GE teachers used physiological references to the heart, blood, brain, body within the context of movement. Mrs. G believed that movement helped the blood flow while Mrs. C believed that students need to move to think. Mrs. E recognized the need to "wake up your brain when it starts to zone out …. Sitting for long periods is not healthy" (Personal communication, September 29, 2016).

Mrs. B strongly believed, "in a strong brain/body connection and when students move more often, their test scores go up" (Personal communication, August 5, 2016).

Mrs. A believed that academics and PA were connected. Mrs. K was adamant that "kid's brains work differently now, I think that they need more stimulus" (Personal communication, October 19, 2016). Mrs. K. used movement daily "I talk to them about how that it activates their brain and what parts of their brain are activated" (Personal communication, October 19, 2016).

Mrs. H believed that her student's "little brains and little bodies need to move around, they can't always just sit there for an hour or more" and moving was "just more beneficial for the kids" (Personal communication, September 22, 2016). Mrs. I had a similar opinion of "having them up, out of their chairs, moving around was so much better than sitting at a desk and reading a recipe then us sitting around a table and passing a bowl" (Personal communication, September 20, 2016).

Mrs. G credited movement as an important idea, "It gets their blood moving and helps with attention issues …. So, that they used their body, so hopefully it stuck in their minds. I want to make learning engaging and fun" (Personal communication September 22, 2016). When talking about the brain/body connection, Mrs. F was a strong proponent of movement in the classroom to learn. She talked in depth why she believed this to be true:

> For example, kids need to move to be successful and get their blood moving. We talk about heartrate and make a motion with our hands how our heart beats …. It gets the blood going, and the heart pumping and kids get antsy if they sit on the rug too long. Movement is important in learning new concepts, and movement helps with reading and tracking.

All incredibly important arguments to me, but the best argument for teachers and students was when learning was disguised and according to Mrs. F, "Sometimes kids don't even know they are learning when they are moving" (Personal communication, September 20, 2016). Mrs. H also expressed, "many times, a kid doesn't know how to do a squat, but if they are squatting to do a spelling word and they don't know they are squatting" (Personal communication September 22, 2016).

Granted, some GE teachers naturally enjoyed movement, as Mr. D admitted that he was a kinesthetic learner and likes to move so he saw the benefits of moving while learning. Mrs. C believed that students needed to move to think. Mr. J liked to move, so he believed that kids do learn by moving.

Mrs. E. recognized that movement was critical. Mr. J used a lot of activities to teach movement concepts and believed that kids learned by constantly moving. Mr. J, Mrs. C, Mrs. H, and Mrs. G all used movement as a review. Mrs. I insisted that student must conceptualize learning to apply it in other areas. All the elementary GE teachers agreed that students needed to move throughout the school day to stay alert and active and prepared to learn and that they tried their best to incorporate some movement regularly. Mrs. A, Mrs. B, Mrs. F, Mr. J, and Mrs. K, do movement daily, while, Mrs. E, Mrs. G, Mrs. H do it weekly, and Mrs. C, Mr. D, and Mrs. I, all responded that they do not do it enough. Excessive sitting has become a detriment to learning and is associated with hazardous health effects and affects the social and mental wellbeing of students. It was clear; students need to move to learn. My study has contributed to the theory that students can move while learning. All the participating GE teachers believed that

students could learn while moving and a KLP was a useful strategy to get students up and out of their desks.

Student engagement. When students were bored, over-whelmed, restless, had difficulty paying attention or staying on task, negative emotional behaviors were more likely to appear. As Barley (2016) said, "Negative emotions such as low frustration tolerance, impatience, and quickness to anger, as well as more general emotional expressions such as easily aroused and emotionally excitable" (p. 249) as some teachers saw these behaviors. As important as student engagement was, it was easy to visually assess. Mrs. A, Mrs. B, Mrs. C, Mr. D, Mrs. F, Mrs. H, Mrs. I, and Mrs. K all mentioned the term engagement and described how students looked when engaged.

Mrs. A and Mr. D both saw their students performing object control skills. Mrs. C and Mrs. I watched their students move about the classroom quickly and efficiently. Mrs. G and Mrs. H saw most of their students spell out letters with their bodies. Mrs. B's students took part in a spelling relay, while Mrs. F kept her students moving and engaged with music and songs.

Research has shown that student engagement is important as students who are on task, follow directions, and are moving are less likely to have negative behaviors, inactivity, and off task movement (Lawson & Lawson, 2013; Martin & Murtagh, 2015; Moreau, 2015; Mullender-Wijnsma et al., 2015; Riley et al., 2015). As important as student engagement was, one new term appeared, spotlighting. It was clear that spotlighting would become an important concept in the teacher perceptions of connecting with students.

Before I embarked upon this study, I had never heard of the term spotlighting. I had assumed that if all students were moving, that could be active learning. As a teacher of fourth-grade students, Mrs. K was adamant that spotlighting one student in front of peers was upsetting "I mean you could fake it on your paper, but when you're physical, and you're out here, people see it" (Personal communication, October 19, 2016). Taking into consideration their age, maturity, and ability, she went on to say:

> If you put them in a position where you're asking them to perform at a certain level everybody can see, you're asking them to standout, and that already is a challenge and I think you really have to be sensitive to how you are setting up that situation, especially for those, those more middle years when that is even more important.

Mrs. B, a teacher of second graders also used the term spotlight when one of her students had a meltdown during her KLP and said:

> Kids who were already feeling insecure about the spelling and kids who couldn't get two words right on the spelling and now are onstage, you want to make sure that they ground rules are established. You can't say anything that will hurt somebody. Spotlighting can be dangerous to a student's self-esteem. It is true, you can fake it on a paper sitting at your desk, but when other students are watching and see you make a mistake, it can be humiliating.

Spotlighting was something that needed to be discussed. As I said before, I was not familiar with spotlighting, but upon conducting this research, I understood how spotlighting caused stress and fatigue and was negatively associated with the executive

function (EF). The literature review in Chapter 2 showed that PA tasks that involved executive functions (planning, strategizing, organization, and processing) enhanced mental processing and were critical to student learning (Ahn & Fedewa, 2011; Best, 2015; Curtis, 1915; Davis et al., 2011; Diamond, 2015; Luz et al., 2015; Ratey, 2008; Shaheen, 2015). A student who felt put on the spot may have found it hard to regulate their EF when they were stressed or tired which affected their emotional regulations as Brock et al., (2016) expressed:

In the classroom, children's achievement relies on the ability to remember instructions and represent the goal of the lesson (working memory), attend to the important features of the lesson (executive attention), and stay on task (inhibitory control), suggesting cool EF may play an important role in kindergarteners' achievement. In addition, the extent to which children are able to down-regulate their emotions and attend to academic content may depend in large part upon hot EF abilities. (p. 338)

Students must experience EF as it relates to psychological processes and social behaviors that support age-and developmentally-appropriate learning (Diamond 2015; Diamond, 2012; Diamond & Lee, 2011; Shaheen, 2015; Spitzer & Hollmann, 2013; Tomporowski et al., 2008) without added stress or unnecessary fatigue. Notably, "this makes sense when one considers that emotional self-regulation is often considered one component of executive functioning (EF) and not separate from it," Barkley (2016; p. 250).

The classroom teacher needs to have the attention of their students in a controlled environment, but students do not always need to be contained in their desks. As with my

study and the beliefs of these teacher participants, students today, are sitting in their seats beyond what is natural and serious health effects are contrary to comity (Hamilton et al., 2008; Lengle & Kuczala, 2010; Norris et al., 2015; Reilly et al., 2012; Singh et al., 2012). Each of the participating GE teachers shared a belief that their students sat in their desks too much. Mrs. E, Mrs. F, and Mrs. H said that since children cannot sit as long as adults, so they should not be required to do it. Mrs. H insisted that "their little brains and their little bodies need to move around, they can't just sit there for an hour" (Personal communication, September 29, 2016). Mrs. I wanted her students up and out of their chairs for a cooking activity. Mrs. A, Mrs. B, Mrs. C, Mr. D, Mrs. G, and Mrs. K all shared their belief that sitting too long was not healthy and agreed that students sit too long during the school day and need to get up and move. Getting students up and moving as part of a KLP was perceived by all the teachers as an important and successful strategy.

Theme 5: Teacher Beliefs and Perceptions

Lastly, a teacher's belief was part of their identity, their frame of reference, and influenced their views on the past, present, and future. Teachers can learn within their own teaching environment. Changing teaching practices may be difficult and takes time, but student-learning outcomes can benefit from teacher beliefs and attitudes. The teaching model of change suggested that even with curricular demands and pressures to perform, teachers could improve their teaching practices (Guskey, 2002).

The literature review in Chapter 2 confirmed the beliefs of the teachers in my study and aligned with Bandura's (1977) premise, that the behavior within the

environment influenced the behavior as teachers become agents, set individual performance standards, and responded to their behavior.

When asked if a teacher gained confidence in the ability to teach a KLP, Mr. J said that he agreed with changing his teaching practices, "There is always room for growth in anything you do and if you don't accept that you can grow, then I think you just go the wrong direction for your kids" (Personal communication, September 21, 2016). Mrs. I concurred when she said, "I think it was fun, they were engaged, they were full-bodied engaged like their minds, their bodies, they were moving and had a focus" (Personal communication, September 20, 2016). Mr. D already felt like his practices were enough, but saw room for improvement while Mrs. G's thinking changed when she said "I need to do this, put this as a priority. this was easy now" (Personal communication September 22, 2016). Mrs. C thought that a KLP would be easy to incorporate and Mrs. H liked her KLP. Mrs. K believed that kid's brains now work differently and they need more stimulus compared to students of past years. Mrs. K also mentioned the importance of proper planning.

Teacher perceptions about how students learned and responded verbally and visually to the KLP was a significant element to this study. I was interested in the perceived knowledge of the GE teacher their thinking or understanding of the process as a lived experience. Knowing that change brings about anxiety and stress (Ratey, 2008; van Rijswijk, et al., 2016), teachers who used a KLP may have stimulated innovative and creative teaching practices, which can promote self-perceptions of effective teaching and reduce anxiety (Fullan, 2007; Ströhle, 2009; van Rijswijk, et al., 2016).

Data from this study determined how GE teachers perceived implementing KLPs using kinesthetic movement to teach the CCSS. At the time of this study, there was a limited amount of information on teaching the CCSS through kinesthetic movement as the CCSS were newly implemented in many states.

Student success. Each elementary GE teacher measured student learning and gave rich descriptions of the lived experience of using a KLP. Students were seen asking questions, making comments, making inquiries, and making statements. Teachers recalled hearing cheering, grouping aloud, calculating aloud, laughing, singing, giggling, yelling out answers, some teasing, some mocking, a little bit of whining, grunting, lots of self-speech, and giving out directions, all expected positive outcomes of a successful learning outcome. Albeit, Mrs. C said that her students were quiet during her KLP as they were trying to do money conversions and did the mental math in their heads.

Teachers talked about observable movements as they viewed students who performed skills, moved about the classroom, engaged, and interacted with peers, followed the rules, smiled, gave high fives, danced, sweat, ate, panicked, fist pumped, and communicated with words and body language.

How teachers perceived student learning was subjective and not measured with standard tests or instruments, but how they believed that their students experienced the CCSS using movement. The teachers gave rich descriptions of the lived experience which allowed me, as a researcher, to better understand how KLPs were used to teach the Common Core.

Summary

The purpose of this study was to gain insight into the lived experiences and perceptions of the elementary education teachers who taught common core using kinesthetic movement delivered using KLPs. I was interested in hearing their ideas and experiences in teaching strategies as they used movement for instructing their students in the Common Core.

In Chapter 4, I provided the results of the research, including significant themes that emerged. To discuss the two research questions, five themes emerged. The first three themes were Teacher Understanding (confidence and comfort), Implementing Resources (creativity and resourcefulness), and Teacher Feelings (pressure and success), all of which related to Research Question 1. The remaining two themes were Making the Connection and Teacher Beliefs and Perceptions about their practices which addressed Research Question 2. This section also offered the setting, participant demographics, data-collection procedures, data analysis, findings, interview results, and results from participants by themes, categories, and evidence of trustworthiness.

In Chapter 5, I conclude with the interpretation of the findings, limitations of the study, recommendations for future research, and implications for social change.

Chapter 5: Discussions, Conclusions, and Recommendations

In this chapter, I present the conclusions and recommendations from my study. The purpose of this study was to gain insight into the lived experiences and perceptions of the elementary GE teachers who taught the Common Core using a KLP. I was interested in hearing their ideas as they used movement for instructing their students in the CCSS. I was interested in the perceptions of the experience of teachers with at least 2 years of teaching experience in general elementary education and who used the KLPs.

My analysis revealed the perceptions of eleven elementary GE teachers who shared their lived experiences in a learning environment (Van Manen, 2014; van Rijswijk, et al., 2016). Bandura (1977a) said, that the experiences that are meaningful, create greater changes in the learning environment and support the self-reinforcement phenomena in the social learning theory. Teachers gained knowledge of behaviors through learning linked with performance and reinforcement. Although lived experience can be ordinary, extraordinary, routine, surprising, dull, or ecstatic, they are experiences nonetheless, and often they become reflective experiences that shapes who we are to become (Van Manen, 2014).

Eleven elementary GE teachers in my study used reflection to share their experience with me and shape their future teaching. As discussed in Chapter 4, knowledge, experience, implementation of resources, feeling confident and comfortable, and making connections helped to shape the teacher's perception of the lived teaching experiences.

Interpretation of the Findings

I used the literature review in Chapter 2 to discuss and support both research questions in my study. For this research study, the phenomenon was the use of a KLP to teach the CCSS. Eleven elementary GE teachers in my study each shared a lived experience that helped them to see their students as learners and helped create perceptions about their teaching strategies.

As the researcher for this study, I was responsible for recruiting participants, conducting the interviews, and collecting, analyzing, and presenting the data. I interviewed teachers after they had taught a KLP as part of their teaching practice to recall and explore the details of the experience. Aligned with the foundations of CCSS, five elementary GE teachers taught a KLP using math, whereas four teachers used ELA and the other two teacher KLPs included mathematical concepts in conjunction with academic language.

The IPA was the proper methodological approach to understand the personal, lived experience. I made a commitment to be open-minded and to suspend and bracket off preconceptions (Smith et al., 2009).

All the elementary GE teachers used rich descriptions about their lived experience and described their personal background knowledge and experience, and their feelings about teaching the KLP related to the two research questions:

1. How did the elementary education teachers experience using the KLPs to teach the Common Core?

2. What were the perceptions of the elementary education teachers about how students learn using KLPs to teach the Common Core?

To address the two research questions, five themes emerged. The first three themes were Teacher Understanding, Implementing Resources, and Teacher Feelings, resulted primarily from Research Question 1. The remaining two themes Making the Connection and Teacher Beliefs and Perceptions, derived from Research Question 2. The following is a compilation of the themes as they related to the two research questions.

Research Question 1

Teacher Understanding Using the Kinesthetic Learning Plan

Teacher knowledge, experiences, and understandings were well documented in this study. With more than 181 years of combined teaching experience, the 11 elementary GE teachers shared their background knowledge, experiences, strategies, resources, and the purpose of the KLP in their teaching practice.

Teacher experience. The elementary GE teacher communicated their feelings about stress, confidence, and comfort, which were important in sharing perceptions about their use of the KLP. It became clear that RQ1, understanding how the teachers experienced the KLP, was vital, as teachers shared their knowledge and experience during preservice preparation and in-service teaching environments. As each teacher reflected on their lived experiences, it became clear that knowledge and experience played a key role with the stressors of teachers and their ability to be comfortable and confident using the KLP. Teachers with varying levels of experience discussed stress or pressure even if it was self-imposed. Mrs. A was frustrated with herself but realized that

she had to forgive herself, because her experiences were attributable to the life of a teacher. Mrs. E thought that there was too much curriculum to present in only one school day.

The elementary GE teachers recognized that confidence and comfort related to knowledge and background, along with knowledge about their students. Mrs. I had great confidence in her ability to teach the cooking KLP and in her student's ability to learn. The Chop Challenge was a success and students mastered the kitchen setting using math concepts in a functional way. Mrs. A, Mrs. B, Mrs. E, and Mrs. K felt that they still lacked experience and shared that they would have been comfortable with more training. Although, Mrs. K realized that when she stepped outside of her comfort zone, her students learned that is was okay to try and fail, an important learning lesson. Mrs. I believed in her lesson, even though her students used sharp tools and hot cooking equipment, which could have been hazardous if used incorrectly.

According to the research in Chapter 2, an important consideration was that teachers needed to feel confident and comfortable in teaching practices in the CCSS era (Murphy & Torff, 2016). Teacher perceptions can change with new teaching practices when learning was clear. It was clear that changes in teachers' attitudes, feelings, and beliefs were not always the result of professional development, but a perception of actual teaching practice and positive student learning outcomes. The results showed that teachers with experience were just as likely to use a KLP as those who were willing to step outside of their comfort zone. Prior personal or professional experiences may have helped with comfort and confidence, with time and classroom management before and

after the KLP. The results suggest that the increased background experience a teacher is not always an indicator of success. Rather, the willingness to use their knowledge and experience along with a willingness to try, resulted in teacher growth and positive perceptions of the KLP teaching experience.

The kinesthetic learning plan. The classroom was the environment for student learning, as the setting, the content, and the delivery were all key factors in planning for student success. The attitudes and beliefs that a teacher held influenced the learning environment. Teachers who combined CCSS with the KLP reported observable changes in student learning and student engagement, that they had not seen before.

Planning a KLP that was proper for the ability level of individual students and for the classroom was important for the elementary GE teachers. It was understandable that when the content was linked with the movement that was too hard to for students, behaviors emerged and forced a teacher to feel uncomfortable; yet when the content was too easy a few students became bored. The results suggest that teachers need a combination of confidence and comfort in themselves and their students for planning, instruction, and delivery of a KLP to perceive the use of KLP as successful. Even with experience using the KLP, they still wanted more training. Mrs. E and Mrs. K both felt that they did not plan the KLP lesson well. Mrs. B thought she planned well, but instruction was difficult. Mrs. C, Mr. D, and Mr. J felt comfortable in their planning. Mrs. F was comfortable in planning and instruction, but felt like she could do better. Mrs. I was pleased that her planning and instruction turned out much better than she expected.

Reflections were incredibly helpful for teachers to identify areas of growth in a) using resources in the planning and implementation of a KLP, b) transformation as teacher, and c) their students as learners. Teachers recalled and shared their experiences of teaching the KLP. Many teachers believed that clear and concise directions were helpful. Planning for cooperation or competition using relevant content was important. A strategy such as a KLP was an alternative way to teach CCSS and teachers felt that they needed experiences, background, resources, and a willingness to try something new.

While teachers had differing experiences, some were successful and others found great difficulty in combining movement and content in just one KLP. All the participating teachers agreed that movement for learning was an important addition to the classroom and that a KLP was a helpful tool and did not take away from academic time.

Research Question 2

Using a KLP enriched teacher knowledge about using movement to learn and was a strategy to get students out of their seats and moving. Increased activity time with reduced sedentary time has potential benefits as shown in my study along with the literature review in Chapter 2. Teachers shared their beliefs and perceptions, as related to RQ2, about student learning, student engagement, and the potential vulnerability of a KLP.

Making the Connections

The in-depth literature review in Chapter 2 of the brain body connection (Agostinho, 2015; Brain Gym International, 2003; Castelli et al., 2015; CDC, 2010; Hillman et al., 2014; Lengel & Kuczala, 2010; Mullender-Wijnsma et al., 2016;

Mullender□Wijnsma et al., 2015; Posadzki et al., 2010; Ratey, 2008; Trost, 2009) was an important part of my study, as teachers used their knowledge and experience to make the brain body connection an important part of student learning. The teacher participants used many examples of physiological and functional words and phrases to show an understanding of how important it was to move to stimulate the brain and avoid sedentary practices. Understanding the brain body connection was an effective tool to implementing a KLP as each teacher shared the importance of student movement as part of the school day (CDC, 2010; Correa-Burrows et al., 2014; Mullender-Wijnsma et al., 2015; Trost, 2009).

The elementary GE teachers taking part in the study showed knowledge about the brain body connection as they used physiological terms such as heart pumping, blood moving, brains stimulating, bodies moving, releasing energy, and staying focused. These were incredibly important functional attributes associated with learning in an elementary classroom.

*S*edentary time was also an area of concern for many teachers. As discussed in Chapter 2, high sedentary time along with low PA affects a student's ability to perform in many settings (Community Preventive Services Task Force, 2016; Corder et al., 2015; Haapala, et al., 2013; Haapala et al., 2016; Hansen et al., 2014; Mitchell & Byun, 2014; Poitras et al., 2016; Väistö, et al., 2014). To combat this unhealthy practice, teachers shared how their students moved during the KLP. They also shared what they heard their students say to one another and how they responded to teacher questions. This data

supports that students can learn from teachers who used a KLP and that active learning can be positively associated with positive teaching practices.

In Chapter 2, excessive sitting was shown to be detrimental to current teaching practices and had negative health affects (Hamilton et al., 2008; Lengle & Kuczala, 2010; Norris et al., 2015; Reilly et al., 2012; Singh et al., 2012) and yet, current, traditional, practices continue to need students to be quiet and seated.

Teachers today potentially and unknowingly contribute to an unhealthy learning environment by avoiding active movement throughout the day. The findings of my study suggest that elementary GE teacher participants understood the need for movement and placed value on the benefits of moving. Mrs. H described this process as she said, "Their little brains and their little bodies need to move around, they can't just sit there for an hour" (Mrs. H, September 29, 2016). Mrs. I also believed that "Having them up, out of their chairs, moving around was so much better than sitting at a desk and reading a recipe" (Mrs. I, September 20, 2016).

The brain body connection had multiple associations to a school based learning environment. The link between motor performance, cognition, and AA were included in the literature review in Chapter 2 and emerged from the thoughts, feelings, and beliefs of the elementary GE teachers taking part in this study. First grade, elementary GE teacher, Mrs. J discussed that students need to be able to cross the midline to become strong readers. In other words, a student must be able to move across the center of their body from the left to the right side, crossing the midline that divides a body into a left half and a right half, to learn to read from the starting point, usually at the left side and moving

toward the right in words and sentences. For the younger students, Mrs. F shared that, "Movement is important in learning new concepts and movement helps with reading and tracking" (Mrs. F, September 21, 2016). Mrs. B cited international Finnish studies that justified her commitment to getting students moving. The participants reported that moving was important to help students learn new concepts and learn to read. However, they also said that using movement to learn had some flaws. Mrs. K spoke about students standing out for the wrong reasons or spotlighting. In fact, spotlighting was mentioned by four of the elementary GE teachers, Mrs. B, Mrs. F, Mrs. I, and Mrs. K. The teacher participants described spotlighting, as a student was singled out and put on the spot and within sight of their peers. It was a concept that I had never considered, as I believed that all students would enjoy moving. The teachers reported that when students were at their desks they can fake their understanding and no one would know, but when the movement was used to learn a concept and a student was put on the spot and within sight of their peers this added unnecessary pressure that some students experienced as a stressful learning environment. As a PE teacher, I had never considered that a situation like this could become stressful or that a KLP could result in too much information for some students. Mrs. K hit the nail on the head when she said, "For some students, it is really hard to try it physically, when it is already difficult academically …. I mean you could fake it on your paper, but when you're physical, and you're out here, people see it" (Mrs. K, October 19, 2016). She touched on an important domain, the social and emotional aspects of the learning environment, something that is often overlooked. It became clear that some students stand out, as she explained:

> Especially because they are such in that place of need to be invisible, you know that pre-teen. I have to be like everybody else, so if you put them in a position where you're asking them to perform at a certain level everybody can see, you're asking them to standout, and that already is a challenge and I think you really have to be sensitive to how you are setting up that situation, especially for those, those more middle years when that is even more important (Mrs. K, October 19, 2016).

Mrs. K understood her students. She considered their emotional states and their ability to be successful. A KLP was a valuable instructional strategy, used by teachers, but teachers needed to understand their student's possibilities and created positive learning environments.

Teacher Beliefs and Perceptions

The reflections and perceptions of the participating elementary GE teachers supported Bandura's (1977a) social learning theory, particularly the self-reinforcement element that holds that the more information that a teacher has and the more they practice, the greater the belief that they can be successful. When a teacher held a positive perception and recognized student learning, then they were more likely to use an alternative strategy, such as a KLP again.

The elementary GE teachers shared their beliefs and perceptions about teaching the KLP. Mrs. A stated that she was comfortable in teaching movement, but wanted more practice. Mrs. B, Mrs. E, and Mrs. K were all confident, but were uncomfortable with the outcomes of the lesson. Mrs. B and Mrs. E both said that they would be

comfortable with more training. Mrs. C, Mr. D, and Mr. J were all comfortable in teaching movement. Mrs. I realized that her students worked well together and she was confident in her students' ability to do a real cooking challenge. Mrs. K tried hard to step outside of her comfort zone, but felt rushed and that her KLP was too hard. She said it best:

> We don't teach kids enough about where their body is and how it affects their mind. I feel like there are kids that need it said to them, shown to them, exampled to them. You have to find a way for students to find some success, otherwise, you have kids saying I can't do it.

The theory of social learning with the element of self-reinforcement (Bandura,1977a) was an appropriate choice to guide this study as each of the participants reflected and retold their lived experiences and shared their ideas of using the KLP. Data from this study found that elementary GE teachers perceived implementing a KLP, using kinesthetic movement to teach the CCSS, was a positive learning experience and did not take away from traditional academic time. The brain body connection was important to understand and elementary GE teachers who tapped into learning while moving helped to create better learners.

At the time of this study, there was a limited amount of information on teaching the CCSS through kinesthetic movement as the CCSS were recently implemented in many states. The identified gap in the literature focused on the effects of moving while learning, while much of the literature review in Chapter 2 discussed learning because of movement.

Limitations of the Study

The main limitation of this study was the recruitment attempts for the teacher participants during a school year. Teacher participants consisted of those who had access to professional organizational bulletin boards, who had access to Twitter, or who had spoken with other teachers as part of a snowball effect (Seidman, 2013; Streeton et al., 2004). Another limitation was the limited amount of literature specific to the teaching practices of teachers within the state, as the CCSS was new and teaching documented practices were scarce. This study was limited to experienced elementary GE teachers in the public schools. Another limitation was the availability of teachers who used movement to teach the KLPs. Lastly, the results were not generalizable to public elementary GE teachers, as the richness of the unique lived experience is valued, but might not be shared by teachers in all areas of education.

Recommendations for Future Research

As important as this research was, there were eight recommendations for further research:

- Further research is needed to understand how students learn using movement such as a KLP in different subject areas.
- Additional research is needed to understand content delivery using kinesthetic movement in a KLP from the teaching perspective and the student perspective.
- The sample from this study was compact, and a larger sample size would be beneficial.

- This study was conducted in a small geographic area in the United States, and it would be helpful to study how other states or countries use a KLP in the education setting
- A comparative study with a control group or experimental group to determine the quantitative effects of a KLP.
- A KLP could be used in a special education setting with students who are on an Individualized Education Program (IEP).
- A KLP could be used in the GE setting with students who are Section 504 as a part of the Rehabilitation Act of 1973.
- A KLP could be used as an assessment tool in the elementary or secondary GE setting.

Implications

The CCSS delineates the content that students must learn. However, it does not dictate how the teachers should teach. Teaching the CCSS using kinesthetic movement, or a KLP, was one strategy used to motivate students to move while learning important subject matter. The teacher participants reported having developed a deeper understanding and greater self-perceptions of the teaching of Common Core concepts. For teachers, the implications of teaching the CCSS through kinesthetic movement aligned with the goals of the designers of the CCSS because teachers have the freedom to be innovative in their teaching strategies. The review of the literature has shown that learning often takes places in a sedentary position rather than in a dynamic environment.

A great deal of research supports learning because of movement rather than learning with intentional movement.

The identified gap was research related to using kinesthetic movement to teach standards-based learning concepts as a teaching strategy from a teacher's perspective. Movement based activities were aligned with teaching to the whole student kinesthetically using spatial elements to explore, create, and communicate (Woolland, 2014). This aim of this study was to understand the perceptions and experiences of elementary GE teachers who used KLPs that focused on kinesthetic movement as a teaching strategy.

Conclusions

For this study, a purposeful sample of elementary GE teachers was interviewed to determine their perceptions about the implementation of the CCSS in a KLP and offer evidence to support the self-reinforcement and social learning theories.

Using the IPA as the methodological approach, I addressed the research questions through an interview process. I could understand the personal, lived experiences with a commitment to open-mindedness and avoided any presumptions (Smith et al., 2009). The in-depth interviews allowed the elementary GE teacher participants to reflect on their experiences and to vividly recall and explore the details to make sense of their experiences and their engagement within the experience (Larkin et al., 2006).

Elementary GE teachers today are under tremendous pressure to teach and measure student success in the CCSS. Using a KLP was the strategy in this study that combined movement with learning concepts as an alternative teaching approach. The

participating teachers communicated that they knew movement was important. They understood the negative effects of sedentary learning and they were eager to their students moving and out of their desks. The teachers reported that movement while learning had potential benefits, but needed to be well planned. Each teacher described how they planned, implemented, assessed, and reflected about teaching a KLP. In rich and deep descriptions, teachers shared their beliefs and perceptions of the effectiveness of teaching, the KLP and student success.

Through the reflections of the teachers in this study, I found that teachers who perceive themselves as successful (confident, comfortable, and willing) and use an alternative strategy, such as a KLP positively, can bring about social change by giving teachers creative freedom to integrate kinesthetic movement into CCSS. To reach learners of all ability levels, elementary GE teachers who learn strategies to teach the CCSS have a greater chance of aligning teaching practices and student learning outcomes to a greater number of students in elementary education. Teachers could seamlessly incorporate movement into their lesson to improve student engagement and learning without taking away from valuable academic time. Teachers perceived KLPs as useful in teaching the CCSS and experienced support for expanding their teaching practices. Positive social change implications include helping teachers maximize instructional time and helping students achieve standards and address health needs.

The pressures that teachers feel today are real. The participating teachers have described the difficulties that they face daily. KLP implementation by these teachers helped to combine student movement with important teaching concepts and this was

reported to have created robust learning environments. A KLP did not interfere with or reduce academic instructional time. In fact, the use of the KLP had produced many positive outcomes. For teachers, a toolbox of strategies is often an effective teaching practice, and a KLP can be used as a tool to reach learners who may have been marginalized, uninterested, or labeled as kinesthetic learners. When students were engaged in a KLP, they were learning concepts through a different mode of learning. Initially, I thought that total student engagement was important for all students, but found that spotlighting, where students struggled during a KLP, was just as important to understand.

Reflection was an important part of this research, as teachers recalled their lived experiences, adding a deeper level of meaning. Elementary teachers often use reflection as part of a teaching practice. Three teachers became emotional, as tears welled up and each of their voices cracked during the interviews, as they reflected upon their KLP. One teacher recalled how proud she was of her students, while two other teachers struggled with how they could have done better. I am grateful that these teachers described how they perceived themselves to be effective teachers and how students learned important concepts using a KLP.

The data from my research represented how teachers perceived themselves in teaching the CCSS using a KLP. The findings suggest that teachers with just a little background knowledge and experience could be confident and comfortable and find success using movement to learn. Although, confidence waivered when teachers lost control of students' due to behavior, competition, understanding, confusion, or boredom

during the KLP. Comfort and confidence was important, although not solely based on experience, but also on student abilities and the KLP.

Making the brain body connection was key to these teachers, and they agreed that students need to get up and move to stimulate their brains and get the blood circulating to learn. Movement throughout the school day is necessary for the whole-body learning in the elementary setting. Research that targeted the elementary GE classroom teacher who used movement as a strategy was lacking. Teachers feel tremendous pressure to keep up with academic expectations. Academic time in the classroom is important, but a KLP did not take away from academic time, it was fun, easy, and can be done more often.

As teachers across the United States are constantly challenged with the CCSS demands, they must be encouraged and supported to try new teaching strategies. Some may argue that movement activities take away from academic time as, "future research should examine whether increased time spent in physical activity during the school day actually displaces time spent in academic tasks and, if so, the effects of this displacement on academic achievement" (LeBlanc et al., 2012, p. 9). It is well-defined that teachers have the freedom to use alternative instructional strategies to teach the CCSS. However, it was shown that teachers need to feel comfortable and confident with their choices in learning new teaching styles.

Notably, the data from my study further supported the social learning theory (Bandura, 1977a) that the more experiential sources teachers have, the more likely perceived changes will increase their self-efficacy in the learning environment (Bandura, 1977a.). Teachers can learn from their experiences in teaching. Understanding what

experience each teacher brought into the culture of a classroom was incredibly important to the teacher and to my study. Some teachers brought a little experience into the classroom of diverse learners. Other teachers had more experience, but the diversity of learners was difficult and the KLP did not go as planned. At times, the teacher's experience was positively affected, despite the diversity. Each teacher discussed the importance of knowing about their students and their capabilities.

As a researcher, it is my belief that we each experience the world differently. We look at research through different lenses, but "to do research is always to question the way we experience the world, to want to know the world in which we live as human beings" (Van Manen, 1990, p. 5). My research has allowed elementary GE teachers to share their lived experiences and share how KLPs can be used in the elementary GE classroom. Furthermore, my research is a contribution to those who have gone before me. I am convinced that the teacher's beliefs and perceptions about a strategy that used the brain body connection were important and aligned with the research of Ratey (2008) when he said:

> It's about growth versus decay, activity versus inactivity. The body was designed to be pushed, and in pushing our bodies we push our brains too. Learning and memory evolved in concert with the motor function that allowed our ancestors to track down food, so as far as our brains are concerned, if we're not moving, there's no real need to learn anything. (p. 53)

The impact for social change began with each of these elementary GE teacher's background in coursework and experience in pre- or in-service programs and workshops.

When each teacher decided that the brain body connection was important to student learning and they made the choice to implement lessons that involved movement. My research had a positive effect on social change for as busy as the teachers were, they became confident in their ability to use kinesthetic movement to learn and not sacrifice academic time. The participating GE teachers learned about themselves, as they experienced the KLP and helped to shape learned teaching perceptions. As the demands for standards-based learning increase, the elementary GE teacher must be able to learn strategies that are functional and incorporate them into their classroom with self-assurance. Teachers perceived KLPs as useful in teaching the CCSS and experienced support for expanding their teaching practices.

This study affects the learning environment, as teachers are typically excluded from the conversations surrounding academic curriculum. This small group of teachers has been given a voice that they have not previously had, and that sends a ripple effect, that can affect the families, schools, and the communities they serve.

References

Agostinho, S., Tindall-Ford, S., Ginns, P., Howard, S. J., Leahy, W., & Paas, F. (2015). Giving learning a helping hand: Finger tracing of temperature graphs on an iPad. *Educational Psychology Review*, *27*(3), 427-443. doi:10.1007/s10648-015-9315-5

Ahamed, Y., Macdonald, H., Reed, K., Naylor, P. J., Liu-Ambrose, T., & Mckay, H. (2007). School-based physical activity does not compromise children's academic performance. *Medicine & Science in Sports & Exercise*, *39*(2), 371. doi:10.1249/01.mss.0000241654.45500.8e

Ahn, S., & Fedewa, A. L. (2011). A meta-analysis of the relationship between children's physical activity and mental health. *Journal of pediatric psychology*, *36* (4), doi:org/10.1093/jpepsy/jsq107

Anthony, J., & Edgington, R. (1971). For the classroom: Classroom performance improved through movement. *Intervention in School and Clinic*, *6*(4), 423-428. doi:10.1177/105345127100600416

Ardoy, D. N., Fernández□Rodríguez, J. M., Jiménez□Pavón, D., Castillo, R., Ruiz, J. R., & Ortega, F.B. (2014). A physical education trial improves adolescents' cognitive performance and academic achievement: The EDUFIT study. *Scandinavian Journal of Medicine & Science in Sports*, *24*(1), e52-e61. doi:10.1111/sms.12093

Atkinson, R. (2015). Does physical activity improve academic performance? *Physical & Health Education Journal, 80*(4), 22-23. Retrieved from http://search.proquest.com/docview/1681402241?accountid=14872

Bainger, L. (2011). Giving teachers a voice: Using interpretative phenomenological

analysis in music education research. *Music Education Research and Innovation 14*(1), 32-38. doi:10.1191/1478088706qp062oa

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, *31*(2), 143-164. doi:10.1177/1090198104263660

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*(2), 117-148. doi:10.1207/s15326985ep2802_3

Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215. doi:10.1037/0033-295X.84.2.191

Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc. doi:10.1177/105960117700200317

Barbosa Filho, V. C., Minatto, G., Mota, J., Silva, K. S., de Campos, W., & da Silva Lopes, A. (2016). Promoting physical activity for children and adolescents in low- and middle-income countries: An umbrella systematic review: A review on promoting physical activity in LMIC. *Preventive Medicine, 88*, 115-126. doi:10.1016/j.ypmed.2016.03.025

Barker, J. E., Semenov, A. D., Michaelson, L., Provan, L. S., Snyder, H. R., & Munakata, Y. (2014). Less-structured time in children's daily lives predicts self-directed executive functioning. *Frontiers in Psychology*, *5*, 593 doi:10.3389/fpsyg.2014.00593

Barkin, S. L. (2013). The relationship between executive function and obesity in children and adolescents: A systematic literature review. *Journal of Obesity*, *2013*(820956*)*, 1-10. doi:10.1155/2013/820956

Barkley, R. A. (2016). Recent longitudinal studies of childhood attention-deficit/hyperactivity disorder: Important themes and questions for further research. *Journal of Abnormal Psychology, 125*(2), 248-255. doi:10.1037/abn0000125

Bartholomew, J. B., & Jowers, E. M. (2011). Physically active academic lessons in elementary children. *Preventive Medicine*, *52*, S51-S54. doi:10.1016/j.ypmed.2011.01.017

Becker, D. R., McClelland, M. M., Loprinzi, P., & Trost, S. G. (2014). Physical activity, self-regulation, and early academic achievement in preschool children. *Early Education & Development*, *25*(1), 56-70. doi:10.1080/10409289.2013.780505

Begel, A., Garcia, D. D., & Wolfman, S. A. (2004, March). Kinesthetic learning in the classroom. In *ACM SIGCSE Bulletin*, *36*(1), 183-184, ACM. doi:10.1145/1028174.971367

Bellanca, J.A, Fogarty, R. J., & Pete, B. M. (2012). *How to tech thinking skills within the Common Core*. Bloomington, IL: Solution Tree Press.

Benes, S., Finn, K. E., Sullivan, E. C., & Yan, Z. (2016). Teachers' perceptions of using movement in the classroom. *Physical Educator*, *73*(1), 110. doi:10.18666/TPE-2016-V73-I1-5316

Berk, L. E., & Winsler, A. (1995). *Scaffolding Children's Learning: Vygotsky and Early Childhood Education. NAEYC Research into Practice Series. Volume 7*. Washington, DC: National Association for the Education of Young Children,

Best, J.R. (2010). Effect of physical activity on children's executive function.

Contributions of experimental research on aerobic exercise. *Developmental Review, 30*(4), 331-351. doi:10.1016/j.dr.2010.08.001

Best, J. R. (2015). Targeting the mind and body: Recommendations for future research to improve children's executive functions. *Revista Argentina de Ciencias del Comportamiento, 7*(1). Retrieved from http://www.redalyc.org/articulo.oa?id=333439929007

Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research*, *10*(2), 141-163. doi:10.1177/004912418101000205

Bingham, T., & Conner, M. (2015). *The new social learning*. Alexandria, Virginia: Association for Talent Development.

Blaydes, J. (2000). *Thinking on your feet*. Murphy, TX: Action Based Learning,

Boddy, L. M., Downs, S. J., Knowles, Z. R., & Fairclough, S. J. (2015). Physical activity and play behaviours in children and young people with intellectual disabilities: A cross-sectional observational study. *School Psychology International*, *36*(2), 154-171. doi:10.1177/0143034314564242

Brain Gym International. (2003). *A chronology of annotated research study summaries in the field of educational kinesiology*. Ventura, CA: The Educational Kinesiology Foundation. Retrieved from http://www.braingym.org/brochures/BG_Research.pdf

Brock, L. L., Rimm-Kaufman, S. E., Nathanson, L., & Grimm, K. J. (2009). The contributions of 'hot 'and 'cool' executive function to children's academic

achievement, learning-related behaviors, and engagement in kindergarten. *Early Childhood Research Quarterly*, *24*(3), 337-349. Retrieved from doi:10.1016/j.ecresq.2009.06.001

Brusseau, T. A., & Hannon, J. C. (2015). Impacting children's health and academic performance through comprehensive school physical activity programming. *International Electronic Journal of Elementary Education*, *7*(3), 441. Retrieved from http://files.eric.ed.gov/fulltext/EJ1068063.pdf

Buell, C., & Whittaker, A. (2001). Enhancing content literacy in physical education. *Journal of Physical Education, Recreation & Dance, 72*(6), 32-37. doi:10.1080/07303084.2001.10605768

Burton, L.J., & VanHeest, J. L. (2007). The importance of physical activity in closing the achievement gap. *Quest, 59*(2), 212-218. doi:10.1080/00336297.2007.10483549

Cammisa, K. M. (1994). Educational kinesiology with learning disabled children: An efficacy study. *Perceptual and motor skills, 78*(1), 105-106. doi:10.2466/pms.1994.78.1.105

Carlson, J. A. (2010). Avoiding traps in member checking. *The Qualitative Report, 15*(5), 1102. Retrieved from http://nsuworks.nova.edu/tqr/vol15/iss5/4

Carr, M. L. (2016). Using self-mentoring to increase teacher efficacy and confidence as leaders: A review of multiple studies from the field. In Petty, T., Good, A., & Putman, S. M. *Handbook of Research on Professional Development for Quality Teaching and Learning* (pp. 307-320). Hershey, PA: IGI Global.

Caspersen, C. J., Powell, K. E., & Christenson, G. M. (1985). Physical activity, exercise,

and physical fitness: definitions and distinctions for health-related research. *Public Health Reports*, *100*(2), 126. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1424733/

Castelli, D. M., Centeio, E. E., Hwang, J., Barcelona, J. M., Glowacki, E. M., Calvert, H. G., & Nicksic, H. M. (2014). VII. The history of physical activity and academic performance research: Informing the future. *Monographs of the Society for Research in Child Development*, *79*(4), 119-148. doi:10.1111/mono.12133

Castelli, D.M., Glowacki, E., Barcelona, J.M., Calvert, H. G., & Hwang, J. (2015). *Active Education: Growing Evidence on Physical Activity and Academic Performance*. Research Brief from University of Texas at Austin. Retrieved from http://activelivingresearch.org/sites/default/files/ALR_Brief_ActiveEducation_Jan2015.pdf.

Centers for Disease Control and Prevention. (2013a). *Comprehensive school physical activity programs: A guide for schools*. Atlanta, GA: US Department of Health and Human Services, 500, 5-49. Retrieved from https://www.cdc.gov/healthyschools/professional_development/e-learning/cspap/page04.html

Centers for Disease Control and Prevention (2013b). *Childhood obesity facts*. Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from https://www.cdc.gov/healthyschools/obesity/facts.htm

Centers for Disease Control and Prevention (2010). *The association between school based physical activity, including physical education, and academic performance.*

Atlanta, GA: U.S. Department of Health and Human Services. Retrieved from http://www.jumpinforhealthykids.org/userfiles/file/news/CDC_School-basedPA_Academics.pdf

Chen, A. (2015). School environment and its effects on physical activity. *Kinesiology Review 4,* 77 – 84. doi:10.1123/kr.2014-0078

Clancy, M.E., & Hruska, B. L. (2005). Developing language objectives for English language learners in physical education lessons. *Journal of Physical Education, Recreation & Dance, 76*(4), 30-35. doi:10.1080/07303084.2005.10608234

Clemes, S. A., Barber, S. E., Bingham, D. D., Ridgers, N. D., Fletcher, E., Pearson, N., Salmon, J., & Dunstan, D. W. (2015). Reducing children's classroom sitting time using sit-to-stand desks: findings from pilot studies in UK and Australian primary schools. *Journal of Public Health*, *38*(3). doi:10.1093/pubmed/fdv084

Cobb, P. R., Chissom, B. S., & Davis, M. W. (1975). Relationships among perceptual-motor, self-concept, and academic measures for children in kindergarten, grades one and two. *Perceptual and Motor Skills*, *41*(2), 539-546. doi:10.2466/pms.1975.41.2.539

Common Core State Standards Initiative (2015). Retrieved from http://www.corestandards.org/

Community Preventive Services Task Force. (2016). *Obesity: Behavioral Interventions that Aim to Reduce Recreational Sedentary Screen Time Among Children* Retrieved from https://beta.thecommunityguide.org/content/obesity-behavioral-interventions-aim-reduce-recreational-sedentary-screen-time-among

Corder, K., Atkin, A. J., Bamber, D. J., Brage, S., Dunn, V. J., Ekelund, U., Owens, M., van Sluijs, E. M. F., & Goodyer, I. M. (2015). Revising on the run or studying on the sofa: prospective associations between physical activity, sedentary behaviour, and exam results in British adolescents. *International Journal of Behavioral Nutrition and Physical Activity*, *12*(1), 1. doi:10.1186/s12966-015-0269-2

Correa-Burrows, P., Burrows, R., Ibaceta, C., Orellana, Y., & Ivanovic, D. (2014). Physically active Chilean school kids perform better in language and mathematics. *Health Promotion Internationa*l, *32*(2), 241-249. doi:10.1093/heapro/dau010

Cothran, D. J., Kulinna, P. H., & Garn, A. C. (2010). Classroom teachers and physical activity integration. *Teaching and Teacher Education*, *26*(7), 1381-1388. doi:10.1016/j.tate.2010.04.003

Craib, I. (2015). *Modern social theory*. London and New York: Routledge Taylor Francis Group.

Curlik, D. M., & Shors, T. J. (2013). Training your brain: Do mental and physical (MAP) training enhance cognition through the process of neurogenesis in the hippocampus? *Neuropharmacology*, *64*, 506-514. doi:10.1016/j.neuropharm.2012.07.027

Curtis, H. (1915). *Education through Play*. New York, NY: The McMillan Company.

Darian, A. (2012). *Taking Action! Movement-based learning for the kindergarten through grade three learner*: *A case study of a Waldorf education early childhood program* (Doctoral dissertation, Arizona State University). Retrieved from

http://repository.asu.edu/attachments/93990/content/tmp/package-DSqeTE/Darian_asu_0010E_12032.pdf

Davis, C.L., Tomporowski, P. D., McDowell, J. E., Austin, B. P., Miller, P. H., Yanasak, N. E., Allison, J. D., & Naglieri, J. A. (2011). Exercise improves executive function and achievement and alters brain activation in overweight children: A randomized, controlled trial. *Health Psychology*, *30*(1), 91-98. doi:10.1037/a0021766

de Greeff, J. W., Hartman, E., Mullender Wijnsma, M. J., Bosker, R. J., Doolaard, S., & Visscher, C. (2016a). Effect of physically active academic lessons on body mass index and physical fitness in primary school children. *Journal of School Health*, *86*(5), 346-352. doi:10.1111/josh.12384

de Greeff, J. W., Hartman, E., Mullender-Wijnsma, M. J., Bosker, R. J., Doolaard, S., & Visscher, C. (2016b). Long-term effects of physically active academic lessons on physical fitness and executive functions in primary school children. *Health education research*, *31*(2), 185-194. doi:10.1093/her/cyv102

de Greeff, J. W., Hartman, E., Mullender-Wijnsma, M. J., Bosker, R. J., Doolaard, S., & Visscher, C. (2014). Physical fitness and academic performance in primary school children with and without a social disadvantage. *Health education research*, *29*(5), 853-860. doi:10.1093/her/cyu043.

Dejonckheere, P. N., Desoete, A., Fonck, N., Roderiguez, D., Six, L., Vermeersch, T., & Vermeulen, L. (2014). Action-based digital tools: Mathematics learning in 6-year-old children. *Electronic Journal of Research in Educational Psychology*, *12*(1),

61-82. doi:10.14204/ejrep.32.13108

Delk, J., Springer, A. E., Kelder, S. H., & Grayless, M. (2014). Promoting teacher adoption of physical activity breaks in the classroom: findings of the Central Texas CATCH middle school project. *Journal of School Health*, *84*(11), 722-730. doi:10.1111/josh.12203

Dennison, P. E., & Dennison, G. E. (1985). *Personalized whole brain integration: The basic II manual on educational kinesiology*. Edu-Kinesthetics. Ventura, CA.

Diamond, A. (2015). Effects of physical exercise on executive functions: Going beyond simply moving to moving with thought. *Annals of Sports Medicine and Research*, *2*(1), 1011. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4437637/

Diamond, A. (2012). Activities and programs that improve children's executive functions. *Current Directions in Psychological Science*, *21*(5), 335–341. doi:10.1177/0963721412453722

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in children 4 to 12 years old. *Science*, *333*(6045), 954-969. doi:10.1126/science.1204529

Dewey, J. (1938). *Experience & Education*. Kappa Delta Pi.

Donnelly, J. E., & Lambourne, K. (2011). Classroom-based physical activity, cognition, and academic achievement. *Preventive Medicine*, *52*(1*)*, S36-S42. doi:10.1016/j.ypmed.2011.01.021

Erickson, K. I., Hillman, C. H., & Kramer, A. F. (2015). Physical activity, brain, and

cognition. *Current Opinion in Behavioral Sciences*, *4*, 27-32. doi:10.1016/j.cobeha.2015.01.005

Erwin, H. E., Abel, M. G., Beighle, A., & Beets, M. W. (2011a). Promoting children's health through physically active math classes: a pilot study. *Health Promotion Practice*, *12*(2), 244-251. doi:10.1177/1524839909331911

Erwin, H. E., Beighle, A., Morgan, C. F., & Noland, M. (2011b). Effect of a low□cost, teacher□directed classroom intervention on elementary students' physical activity. *Journal of School Health*, *81*(8), 455-461. doi:10.1111/j.1746-1561.2011.00614.x

Erwin, H., Fedewa, A., Beighle, A., & Ahn, S. (2012). A quantitative review of physical activity, health, and learning outcomes associated with classroom-based physical activity interventions. *Journal of Applied School Psychology*, *28*(1), 14-36. doi:10.1080/15377903.2012.643755

Esteban-Cornejo, I., Tejero-González, C. M., Martinez-Gomez, D., Cabanas-Sánchez, V., Fernández-Santos, J. R., Conde-Caveda, J., Sallis, J. F., Veiga, O. L. and UP & DOWN Study Group (2014). Objectively measured physical activity has a negative but weak association with academic performance in children and adolescents. *Acta Paediatrica*, *103*: e501–e506. doi:10.1111/apa.12757

Fede, M. H., (2012). Physical activity strategies for improved cognition: The mind/body connection, *Strategies, 25*(8), 16-20. doi:10.1080/08924562.2012.10592177

Finn, K. E., & McInnis, K. J. (2014). Teachers' and students' perceptions of the active science curriculum: Incorporating physical activity into middle school science

classrooms. *Physical Educator*, *71*(2), 234. Retrieved from http://activescienceforkids.org/pdf/2PublicationsResearch.pdf

Fischer, U., Moeller, K., Bientzle, M., Cress, U., & Nuerk, H. C. (2011). Sensori-motor spatial training of number magnitude representation. *Psychonomic Bulletin & Review*, *18*(1), 177-183. doi:10.3758/s13423-010-0031-3

Florin, T.A., Shults, J. & Stettler, N., (2011). Perception of overweight is associated with poor academic performance in US adolescents. *Journal of School Health 81*(11) 663–670. doi:10.1111/j.1746-1561.2011.00642.x

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worton Publishers.

Fredericks, C. R., Kokot, S. J., & Krog, S. (2006). Using a developmental movement programme to enhance academic skills in grade 1 learners. *South African Journal for Research in Sport, Physical Education, and Recreation*, *28*(1), 29-42. doi:10.4314/sajrs.v28i1.25929

Furmanek, D. (2014). Classroom choreography: Enhancing learning through movement. *Young Children*. September 2014. 80-89 Retrieved from https://www.mbaea.org/documents/resources/Young_Children__Sept_2014_Supportin_C3585A053A4E2.pdf

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York: Basic Books. doi:10.2307/3332707

Gehris, J. S., Gooze, R. A., & Whitaker, R. C. (2015). Teachers' perceptions about children's movement and learning in early childhood education programmes.

Child: Care, Health, and Development, *41*(1), 122-131. doi:10.1111/cch.12136

Goh, T. L., Hannon, J. C., Brusseau, T. A., Webster, C., Podlog, L., & Newton, M. (2014). Effects of a classroom based physical activity program on children's physical activity levels. *Journal of Teaching in Physical Education*, *33*(4), 558-572. http://dx.doi.org/10.1123/jtpe.2014-0068

Goh, T. L., Hannon, J. C., Newton, M., Webster, C., Podlog, L., & Pillow, W. (2013). "I'll squeeze it in": Transforming preservice classroom teachers' perceptions toward movement integration in schools. *Action in Teacher Education*, *35*(4), 286-300. doi:10.1080/01626620.2013.827600

Gómez, M. A. (2015). Rudolf von Laban. RICYDE. *Revista Internacional de Ciencias del Deport, 11* (11). doi:10.5232/ricyde2014.039

Greenough, W. T., Black, J. E., & Wallace, C. S. (1987). Experience and brain development. *Child Development*, 539-559. doi:10.2307/1130197

Grieco, L. A., Jowers, E. M., & Bartholomew, J. B. (2009). Physically active academic lessons and time on task: the moderating effect of body mass index. *Medicine & Science in Sports & Exercise*, *41*(10), 1921-1926. doi:10.1249/MSS.0b013e3181a61495

Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. San Francisco, CA: Jossey-Bass.

Guskey T.R. (2002). Professional development and teacher change. Teachers and teaching. *Theory and Practice 83*(3/4), 381–391.

doi:10.1080/135406002100000512

Haapala, E. A., Lintu, N., Väistö, J., Robinson, L. E., Viitasalo, A., Lindi, V., & Lakka, T. A. (2015). Associations of physical performance and adiposity with cognition in children. *Medicine & Science in Sports & Exercise*, *47*(10), 2166-2174. doi**:**10.1249/MSS.0000000000000652

Haapala, E. A., Väistö, J., Lintu, N., Westgate, K., Ekelund, U., Poikkeus, A. M., Brage, S., & Lakka, T. A. (2016). Physical activity and sedentary time in relation to academic achievement in children. *Journal of Science and Medicine in Sport 20*(6), 583–589. doi:10.1016/j.jsams.2016.11.003

Haapala, E. A., Poikkeus, A. M., Tompuri, T., Kukkonen-Harjula, K., Leppänen, P. H., Lindi, V., & Lakka, T. A. (2013). Associations of motor and cardiovascular performance with academic skills in children. *Medicine & Science in Sports & Exercise*, *46*(5), 1016-1024. doi:10.1249/MSS.0000000000000186

Hansen, D. M., Herrmann, S. D., Lambourne, K., Lee, J., & Donnelly, J. E. (2014). Linear/nonlinear relations of activity and fitness with children's academic achievement. *Medicine & Science in Sports & Exercise*, *46*(12), 2279-2285. doi:10.1249/MSS.0000000000000362.

Hamilton, M., Healy, G., Dunstan, K. Zederic, T., & Owen, N. (2008). Too little exercise and too much sitting: Inactivity, physiology, and the need for new recommendations on sedentary behavior. *Current Cardiovascular Risk Reports* (2), 292-298. doi:10.1007/s12170-008-0054-8

Harland, T. (2003). Vygotsky's zone of proximal development and problem-based

learning: linking a theoretical concept with practice through action research. *Teaching in Higher Education*, *8*(2), 263. doi:10.1080/1356251032000052483

Hengstman, J. G. (2001). *Movement ABCs. An inclusive guide to stimulating language development*. Champaign, IL: Human Kinetics.

Heshmat, R., Larijani, F. A., Pourabbasi, A., & Pourabbasi, A. (2014). Do overweight students have lower academic performance than their classmates? A pilot cross sectional study in a middle school in Tehran. *Journal of Diabetes & Metabolic Disorders, 13*(1), 1. doi:10.1186/s40200-014-0087-0

Hill, L. J., Williams, J. H., Aucott, L., Thomson, J., & Mon –Williams, M. (2011). How does exercise benefit performance on cognitive tests in primary□school pupils? *Developmental Medicine & Child Neurology*, *53*(7), 630-635. doi:10.1111/j.1469-8749.2011.03954.x

Hillman, C. H., Erickson, K. I., & Kramer, A. F. (2008). Be smart, exercise your heart: exercise effects on brain and cognition. *Nature Reviews Neuroscience*, *9*(1), 58-65. doi:10.1038/nrn2298

Hillman, C. H., Pontifex, M. B., Castelli, D. M., Khan, N. A., Raine, L. B., & Scudder, M. R. y Kamijo, K. (2014). Effects of the FITKids randomized controlled trial on executive control and brain function. *Pediatrics, 134*(4), e1063-e1071. doi:10.1542/peds.2013-3219

Hoehner, C. M., Ribeiro, I. C., Parra, D. C., Reis, R. S., Azevedo, M. R., Hino, A. A., Soares, J., Hallal, P.C., Simoes, E. J., & Brownson, R. C. (2013). Physical activity interventions in Latin America: Expanding and classifying the evidence.

American Journal of Preventive Medicine, *44*(3), e31-e40. doi:10.1016/j.amepre.2012.10.026

Howie, E. K., Schatz, J., & Pate, R. R. (2015). Acute effects of classroom exercise breaks on executive function and math performance: A dose–response study. *Research Quarterly for Exercise and Sport*, *86*(3), 217-224. doi:10.1080/02701367.2015.1039892

Hruska, B., & Clancy, M. E. (2008). Integrating movement and learning in elementary and middle school. *Strategies, 21*(5), 13-20. doi:10.1080/08924562.2008.10590787

IOM (Institute of Medicine). (2013). *Educating the student body: Taking physical activity and physical education to school*. Washington, DC: The National Academies Press.

Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *The International Journal of Behavioral Nutrition and Physical Activity, 7*(1), 40. doi:10.1186/1479-5868-7-40

Jaques-Dalcroze, É. (1920). *Method of eurhythmics: Rhythmic movement, vol. 1*. London, England: Novello & Co.

Jawad, F. (2015). “These booties are made for walking” Active movement–innovation in combatting children’s inactivity and obesity. www.activemovement.co.uk. doi:10.1037/a0021766

Jensen, E. (2005). *Teaching with the brain in mind* (2nd ed.). Alexandria, VA:

Association for Supervision and Curriculum Development.

Juntunen, M. L., & Hyvönen, L. (2004). Embodiment in musical knowing: How body movement facilitates learning within Dalcroze eurhythmics. *British Journal of Music Education*, *21*(02), 199-214. doi:10.1017/s0265051704005686

Käll, L. B., Nilsson, M., & Lindén, T. (2014). The impact of a physical activity intervention program on academic achievement in a Swedish elementary school setting. *Journal of School Health*, *84*(8), 473-480. doi:10.1111/josh.12179

Katz, D. L., Cushman, D., Reynolds, J., Njike, V., Treu, J. A., Walker, J., Smith, E., & Katz, C. (2010). Putting physical activity where it fits in the school day: Preliminary results of the ABC (activity bursts in the classroom) for fitness program. *Prevention of Chronic Disease, 7*(4), A82, 1-10Retrieved from http://www.cdc.gov/pcd/issues/2010/jul/09_0176.htm

Kaufman, C. (2010). *Executive function in the classroom: Practical strategies for improving performance and enhancing skills for all students*. Baltimore, MD: Brookes Publishing Company.

Khalsa, G. K., Morris, G. D., & Sifft, J. M. (1988). Effect of educational kinesiology on static balance of learning disabled students. *Perceptual and Motor Skills*, *67*(1), 51-54. doi:10.2466/pms.1988.67.1.5

Kim, J. H., & So, W. Y. (2013). Association between overweight/obesity and academic performance in South Korean adolescents. *Central European Journal of Public Health, 21*(4), 179-183. Retrieved from http://apps.szu.cz/svi/cejph/archiv/2013-4-01-full.pdf

Ko, B., & Boswell, B. (2013). Teachers' perceptions, teaching practices, and learning opportunities for inclusion. *Physical Educator*, *70*(3), 223-242. Retrieved from http://js.sagamorepub.com/pe/article/view/4262

Koch, J. L. (2013). Linking physical activity with academics: Strategies for integration. *Strategies, 26*(3), 41-43. doi:10.1080/08924562.2013.782242

Koutrouba, K. (2012). A profile of the effective teacher: Greek secondary education teachers' perceptions. *European Journal of Teacher Education*, *35*(3), 359-374. doi:10.1080/02619768.2011.654332

Kriemler, S., Zahner, L., Schidler, C., Meyer, U., Hartmann, T., Hebestreit, H. and Puder, J. (2010). Effect of school based physical activity program (KISS) on fitness and adiposity in primary schoolchildren: Cluster randomized controlled trial. *British Medical Journal, 340*(c785). doi:10.1136/bmj.c785

Laban, R., & Ullmann, L. (1971). *The mastery of movement*. Boston, Mass: Plays Inc.

Larkin, M., Watts, S., & Clifton, E. (2006). Giving voice and making sense in interpretative phenomenological analysis. *Qualitative Research in Psychology*, *3*(2), 102-120. doi:10.1191/1478088706qp062oa

Lawson, H. A. (2012). Realizing the promise to young people: Kinesiology and new institutional designs for school and community programs. *Kinesiology Review, 1*(1), 76-90. doi:10.1123/krj.1.1.76

Lawson, M. A., & Lawson, H. A. (2013). New conceptual frameworks for student engagement research, policy, and practice. *Review of Educational Research 83*(3), 432-479. doi:10.3102/0034654313480891

LeBlanc, M. M., Martin, C. K., Han, H., Newton Jr, R., Sothern, M., Webber, L. S., Dave, A. B., & Williamson, D. A. (2012). Adiposity and physical activity are not related to academic achievement in school-aged children. *Journal of Developmental and Behavioral Pediatrics 33*(6), 486-494. doi:10.1097/DBP.0b013e31825b849e.

Lee, S., & Tomporowski, P. (2016). *Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review*: Position stand. American College of Sports Medicine. doi:10.1249/MSS.0000000000000901

Lengel, T., & Kuczala, M. (Eds.). (2010). *The kinesthetic classroom: Teaching and learning through movement*. Thousand Oaks, CA, Sage: Corwin Press.

Link, T., Moeller, K., Huber, S., Fischer, U., & Nuerk, H. C. (2013). Walk the number line–An embodied training of numerical concepts. *Trends in Neuroscience and Education*, *2*(2), 74-84. doi:10.1016/j.tine.2013.06.005

Lopes, L., Santos, R., Pereira, B., & Lopes, V. P. (2013). Associations between gross motor coordination and academic achievement in elementary school children. *Human Movement Science, 32*(1), 9-20. doi:10.1016/j.humov.2012.05.005

Lub, V. (2015). Validity in qualitative evaluation: Linking purposes, paradigms, and perspectives. *International Journal of Qualitative Methods*, *1*(80). doi:10.1177/1609406915621406

Luz, C., Rodrigues, L. P., & Cordovil, R. (2015). The relationship between motor coordination and executive functions in 4th grade children. *European Journal of Developmental Psychology*, *12*(2), 129-141. doi:10.1080/17405629.2014.966073

Maggs□Rapport, F. (2001). 'Best research practice': In pursuit of methodological rigour. *Journal of Advanced Nursing*, *35*(3), 373-383. doi:10.1046/j.1365-2648.2001.01853.x

Magill, R. A., & Anderson, D. (2014). *Motor learning and control: Concepts and applications* (10th ed.). Boston, MA: McGraw Hill.

Mahar, M. T., Murphy, S. K., Rowe, D. A., Golden, J., Shields, A. T., & Raedeke, T. D. (2006). Effects of a classroom-based program on physical activity and on-task behavior. *Medicine & Science in Sports & Exercise, 38* (12), 2086-2094. doi:10.1249/00005768-200605001-00366

Martin, R., & Murtagh, E. M. (2015). Preliminary findings of Active Classrooms: An intervention to increase physical activity levels of primary school children during class time. *Teaching and Teacher Education*, *52*, 113-127.: doi:10.1016/j.tate.2015.09.007

Mathis, W. J. (2010). The "Common Core" standards initiative: An effective reform tool. *Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit.* Retrieved from http://nepc.colorado.edu/publication/common-core-standards

Mavilidi, M. F., Okely, A. D., Chandler, P., Cliff, D. P., & Paas, F. (2015). Effects of integrated physical exercises and gestures on preschool children's foreign language vocabulary learning. *Educational Psychology Review*, *27*(3), 413-426. doi:10.1007/s10648-015-9337-z

Maxwell, J. A. (2013). *Qualitative research design: An interactive approach: An*

interactive approach. Thousand Oaks, CA. Sage Publications Inc.

McMullen, J., Kulinna, P., & Cothran, D. (2014). Physical activity opportunities during the school day: classroom teachers' perceptions of using activity breaks in the classroom. *Journal of Teaching Physical Education*, *33*(4), 511-27. doi:10.1123/jtpe.2014-0062

Medina, J. (2014). *Brain Rules:12 Principles for Surviving and Thriving at Work, Home, and School.* Seattle, WA. Pear Press.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook*. Thousand Oaks, CA. SAGE Publications, Incorporated.

Milteer, R. M., Ginsburg, K. R., & Mulligan, D. A. (2012). The importance of play in promoting healthy child development and maintaining strong parent-child bond: Focus on children in poverty. *Pediatrics 129*, e204-e213. Retrieved from http://pediatrics.aappublications.org/content/129/1/e204.full

Mitchell, J. A., & Byun, W. (2014). Sedentary behavior and health outcomes in children and adolescents. *American Journal of Lifestyle Medicine, 8*(3), 173-199. doi:10.1177/1559827613498700

Montessori, M. (1966). The *Human Tendencies and Montessori Education*. Amsterdam, Netherlands: Association Montessori Internationale.

Moreau, D. (2015). Brains and brawn: Complex motor activities to maximize cognitive enhancement. *Educational Psychology Review, 27*(3), 475-482. doi:10.1007/s10648-015-9323-5

Moreau, D., Morrison, A. B., & Conway, A. R. (2015). An ecological approach to

cognitive enhancement: Complex motor training. *Acta Psychologica*, *157*, 44-55. doi:10.1016/j.actpsy.2015.02.007

Morris, L. R., & Schulz, L. (1989). *Creative play activities for children with disabilities: a resource book for teachers and parents*. Champaign, IL: Human Kinetics.

Moughamian, A. C., Rivera, M. O., & Francis, D. J. (2009). Instructional models and strategies for teaching English language learners. Center on Instruction. Retrieved from http://files.eric.ed.gov/fulltext/ED517794.pdf

Mullender□Wijnsma, M. J., Hartman, E., de Greeff, J. W., Bosker, R. J., Doolaard, S., & Visscher, C. (2015). Improving academic performance of school□age children by physical activity in the classroom: 1□year program evaluation. *Journal of School Health, 85*(6), 365-371. doi:10.1111/josh.12259

Mullender-Wijnsma, M. J., Hartman, E., de Greeff, J. W., Doolaard, S., Bosker, R. J., & Visscher, C. (2016). Physically active math and language lessons improve academic achievement: a cluster randomized controlled trial. *Pediatrics*, *137*(3), 1-9. doi:10.1542/peds.2015-2743

Murphy, A. F., & Torff, B. (2016, January). Growing pains: The effect of common core state standards on perceived teacher effectiveness. T*he Educational Forum 80* (1), 21-33. doi:10.1080/00131725.2015.1102999

National Association for Sport and Physical Education (NASPE, 2008). *Comprehensive school physical activity programs*: Position statement, Reston, VA.

National Governors Association Center for Best Practices Council of Chief State School Officers (2010). *Common core state standards*. National Governors Association

Center for Best Practices, Council of Chief State School Officers, Washington D.C.

Norris, E., Shelton, N., Dunsmuir, S., Duke-Williams, O., & Stamatakis, E. (2015). Physically active lessons as physical activity and educational interventions: A systematic review of methods and results. *Preventive medicine*, *72*, 116-125. doi:10.1016/j.ypmed.2014.12.027

Obama, F. L. M. (2012). Let's move! Raising a healthier generation of kids. *Childhood obesity, 8*(1), 1. doi:10.1089/chi.2012.0800.obam

Park, S., Cho, Y., Yoon, S., & Han, H. (2013). Comparing team learning approaches through the lens of activity theory. *European Journal of Training & Development*, *37*(9), 788-810. doi:10.1108/EJTD-04-2013-0048

Pesce, C., Crova, C., Marchetti, M., Struzzolino, I., Masci, I., Vannozzi, G., & Forte, R. (2013). Searching for cognitively optimal challenge point in physical activity for children with typical and atypical motor development. *Mental Health and Physical Activity, 6*(3), 172-180. doi:10.1016/j.mhpa.2013.07.001

Pesce, C. (2012). Shifting the focus from quantitative to qualitative exercise characteristics in exercise and cognition research. *Journal of Sport & Exercise Psychology, 34*(6), 766-786. doi:10.1123/jsep.34.6.766

Phillips-Silver, J., & Trainor, L. J. (2007). Hearing what the body feels: Auditory encoding of rhythmic movement. *Cognition*, *105*(3), 533-546. doi:10.1016/j.cognition.2006.11.006

Piaget, J. (1953). The *origin of intelligence in the child*. New Fetter Lane, New York:

Routledge & Kegan Paul.

Plato. (n.d.). BrainyQuote.com. Retrieved December 7, 2014, from BrainyQuote.com website:http://www.brainyquote.com/quotes/authors/p/plato.html

Plato, *Phaedo*, Plato. (1925). *Plato in Twelve Volumes, Vol. 1*. Cambridge, MA: Harvard University Press. London, William Heinemann Ltd. 1966.

Poitras, V. J., Gray, C. E., Borghese, M. M., Carson, V., Chaput, J. P., Janssen, I., Katzmarzyk, P.T., Pate, R. R., Connor Gorber, S., Kho, M.E. Sampson, M., & Tremblay, M.S. (2016). Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth 1. *Applied Physiology, Nutrition, and Metabolism*, *41*(6), S197-S239. doi:10.1139/apnm-2015-0663

Posadzki, P., Parekh, S., O'Driscoll, M. L., & Mucha, D. (2010). Qi Gong's relationship to educational kinesiology: A qualitative approach. *Journal of Bodywork and Movement Therapies*, *14*(1), 73-79. doi:10.1016/j.jbmt.2008.11.002

Post, L. S., Van Gog, T., Paas, F., & Zwaan, R. A. (2013). Effects of simultaneously observing and making gestures while studying grammar animations on cognitive load and learning. *Computers in Human Behavior*, *29*(4), 1450-1455. doi:10.1016/j.chb.2013.01.005

Prashnig, B. (2004). *The power of diversity: New ways of learning and teaching through learning styles*. Cornwall, UK, Continuum International Publishing Group.

Rasberry, C. N., Lee, S. M., Robin, L., Laris, B. A., Russell, L. A., Coyle, K. K., & Nihiser, A. J. (2011). The association between school-based physical activity,

including physical education, and academic performance: a systematic review of the literature. *Preventive Medicine*, *52*, S10-S20. doi:10.1016/j.ypmed.2011.01.027

Ratey, J.J. (2008). *Spark; the revolutionary new science of exercise and the brain*. New York, NY. Little Brown and Company. doi:10.1176/ps.2008.59.8.939

Rauscher, F. H. (2002). Mozart and the mind: Factual and fictional effects of musical enrichment. *Improving academic achievement: Impact of psychological factors on education*, 267-278. doi:10.1016/B978-012064455-1/50016-6

Reeves, M. J., & Bailey, R. P. (2014). The effects of physical activity on children diagnosed with attention deficit hyperactivity disorder: A review. *Education 3*(13), 1-13. doi:10.1080/03004279.2014.918160

Reid, K., Flowers, P., & Larkin, M. (2005). Exploring lived experience. *Psychologist*, *18*(1), 20-23. Retrieved from http://thepsychologist.bps.org.uk/volume-18/edition-1/exploring-lived-experience

Reilly, E., Buskist, C., & Gross, M. K. (2012). Movement in the classroom: Boosting brain power, fighting obesity. *Kappa Delta Pi Record, 48*(2), 62-66. doi:10.1080/00228958.2012.680365

Rigoli, D., Piek, J. P., Kane, R., Whillier, A., Baxter, C., & Wilson, P. (2013). An 18-month follow-up investigation of motor coordination and working memory in primary school children. *Human Movement Science*, *32*(5), 1116-1126. doi:10.1016/j.humov.2013.07.014

Riley, N., Lubans, D. R., Morgan, P. J., & Young, M. (2015). Outcomes and process

evaluation of a programme integrating physical activity into the primary school mathematics curriculum: The EASY Minds pilot randomised controlled trial. *Journal of Science and Medicine in Sport*, *18*(6), 656-661. doi:10.1016/j.jsams.2014.09005

Riley, N., Lubans, D. R., Holmes, K., & Morgan, P. J. (2014). Rationale and study protocol of the EASY Minds (Encouraging Activity to Stimulate Young Minds) program: cluster randomized controlled trial of a primary school-based physical activity integration program for mathematics. *BioMed Central Public Health*, *14*(1), 1. doi:10.1186/1471-2458-14-816

Roebers, C. M., Röthlisberger, M., Neuenschwander, R., Cimeli, P., Michel, E., & Jäger, K. (2014). The relation between cognitive and motor performance and their relevance for children's transition to school: A latent variable approach. *Human Movement Science*, *33*, 284-297. doi:10.1016/j.humov.2013.08.011

Rose, D. H., & Meyer, A. (2006). *A practical reader in universal design for learning*. Cambridge, MA. Harvard Education Press, Retrieved from http://eric.ed.gov/?id=ED515447

Roy, J., & Carter, V. (2013). Elementary teacher perceptions of teaching practices that foster creative thinking in students. *Inquiry*, *14*, 75-94. Retrieved from http://scholarworks.uark.edu/inquiry/vol14/iss1/9

Rubenstein, L. D., McCoach, D. B., & Siegle, D. (2013). Teaching for creativity scales: An instrument to examine teachers' perceptions of factors that allow for the teaching of creativity. *Creativity Research Journal*, *25*(3), 324-334.

doi:10.1080/10400419.2013.813807

Ruiter, M., Loyens, S., & Paas, F. (2015). Watch your step children! Learning two-digit numbers through mirror-based observation of self-initiated body movements. *Educational Psychology Review*, *27*(3), 457-474. doi:10.1007/s10648-015-9324-4

Rust, T. (2012). Common core standards. *Technology & Engineering Teacher, 72*(3), 32-36. Retrieved from http://eric.ed.gov/?id=EJ995786.

Sallis, J. F., Prochaska, J. J., & Taylor, W. C. (2000). A review of correlates of physical activity of children and adolescents. *Medicine & Science in Sports & Exercise*, *32*(5), 963-975. doi:10.1177/0017896912469578

Salvy, S.-J., Bowker, J. C., Germeroth, L., & Barkley, J. (2012). Influence of peers and friends on overweight/obese youth's physical activity. *Exercise & Sport Science Reviews, 40*, 127-132. doi:10.1097/JES.0b013e31825af07b

Sanders, M. J. (2014, September). Designing classroom routines to promote physical activity in children. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 58, No. 1, pp. 529-533). SAGE Publications doi:10.1177/1541931214581110

Sattelmair, J., & Ratey, J. J. (2009). Physically active play and cognition. *American Journal of Play, 1*(3), 365-374. Retrieved from http://johnratey.typepad.com/sattelratey.pdf

Schwandt, T. A. (2015). *The Sage dictionary of qualitative enquiry*. Thousand Oaks, CA: Sage.

Scudder, M.R., Federmeier, K.D. Raine, L.B. Direito, A. Boyd, J.K., & Hillman, C.H.

(2014). The association between aerobic fitness and language processing in children: Implications for academic achievement. *Brain and Cognition 87*: 140-152. doi:10.1016/j.bandc.2014.03.016

Seidman, I. (2013). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. New York, NY: Teachers college press.

Shaheen, S. (2014). How child's play impacts executive function–related behaviors. *Applied Neuropsychology: Child*, *3*(3), 182-187. doi:10.1080/21622965.2013.839612

Shoval, E. (2011). Using mindful movement in cooperative learning while learning about angles. *Instructional Science, 39*(4), 453-466. doi:10.1007/s11251-010-9137-2

Seitz, J. A. (2005). Dalcroze, the body, movement, and musicality. *Psychology of Music*, *33*(4), 419-435. doi:10.1177/0305735605056155

Shaw, S. R., Gomes, P., Polotskaia, A., & Jankowska, A. M. (2015). The relationship between student health and academic performance: Implications for school psychologists. *School Psychology International, 36*(2), 115-134. doi:10.1177/0143034314565425

Sibley, B., & Etnier, J. (2003). The Relationship between physical activity and cognition in children: A meta-analysis. *Pediatric Exercise & Sciences* (15), 243-256. Retrieved from https://www.ayfcoaching.com/AcuCustom/Sitename/Documents/DocumentItem/2196.pdf

Singh, A., Uijtdwelligen, L., Twisk, J.W.R., van Mechelen, W., & Chinapaw, M.J.M.,

(2012). Physical activity and performance. A*rcheology Pediatric Adolescent Medicine 166* (1). doi:10.1001/archpediatrics.2011.716

Smith, J. A. (Ed.). (2007). *Qualitative psychology: A practical guide to research methods*. Thousand Oaks, CA: Sage Publications Inc.

Smith, J.A., Flowers, J., & Larkin, M. (2009). *Interpretative Phenomenological Analysis: Theory, method, and research.* Thousand Oaks, CA: Sage Publications Inc.

Smith, E., Hay, P., Campbell, L., & Trollor, J. N. (2011). A review of the association between obesity and cognitive function across the lifespan: Implications for novel approaches to prevention and treatment. *Obesity Reviews, 12*(9), 740-755. doi:10.1111/j.1467-789X.2011.00920.x

Smith, P. K., & Pellegrini, A. D. (2008). *Learning through play*. In R. E. Tremblay, R. G. Barr, R. D. V. Peters & M. Boivin (Eds.), Encyclopedia on Early Childhood Development (pp. 1-6). Montreal, Quebec, Canada: Centre of Excellence for Early Childhood Development. Retrieved from http://www.child-encyclopedia.com/Pages/PDF/Smith-PellegriniANGxp2.pdf

Soares, N. M. M., Leão, A. S., Santos, J. R., Monteiro, G. R., Santos, J. R. D., Thomazzi, S. M., & Silva, R. J. D. S. (2014). Systematic review shows only few reliable studies of physical activity intervention in adolescents. *The Scientific World Journal*, *2014*. doi:10.1155/2014/206478

Society of Health and Physical Educators America. (2014). *National standards & grade-level outcomes for K-12 physical education*. Champaign, IL: Human Kinetics.

SPARK. (2016). Sports, Play & Active Recreation for Kids. Retrieved from

www.sparkpe.org

Spaulding, L. S., Mostert, M. P., & Beam, A. P. (2010). Is brain gym an effective educational intervention? *Exceptionality*, *18*(1), 18-30. doi:10.1080/09362830903462508

Spielmann, C., Hartford, S. D., & Pearce, K. L. (2005). The effects of movement based learning on student achievement in the elementary school classroom. *MEd Thesis*. *Black Hills State University.* Retrieved from http://doe. sd. gov/curriculum/SDReads/docs/SpielmannActionResearch.pdf

Spitzer, U. S., & Hollmann, W. (2013). Experimental observations of the effects of physical exercise on attention, academic and prosocial performance in school settings. *Trends in Neuroscience and Education, 2*(1), 1-6. doi:10.1016/j.tine.2013.03.002

Steiner, R., & Wilson, M. (1999). *The philosophy of freedom (the philosophy of spiritual activity): The basis for a modern world conception: Some results of introspective observation following the methods of natural science*. Trowbridge, Wiltshire: Cromwell Press Ltd.

Stewart, J. A., Dennison, D. A., Kohl, H. W., & Doyle, J. A. (2004). Exercise level and energy expenditure in the TAKE 10! In□class physical activity program. *Journal of School Health, 74*(10), 397-400. doi:10.1111/j.1746-1561.2004.tb06605.x

Streeton R, Cooke M, & Campbell J. (2004). Researching the researchers: using a snowballing technique. *Nurse Researcher 12*(1), 35-46. doi:10.7748/nr2004.07.12.1.35.c5929

Ströhle, A. (2009). Physical activity, exercise, depression, and anxiety disorders. *Journal of Neural Transmission*, *116*(6), 777-784. doi:10.1007/s00702-008-0092-x

Stylianou, M., Kulinna, P. H., & Naiman, T. (2015). '… Because there's nobody who can just sit that long': Teacher perceptions of classroom-based physical activity and related management issues. *European Physical Education Review*, *22*(3), 390-408. doi:10.1177/1356336X15613968

Symeonides, R., & Childs, C. (2015). The personal experience of online learning: An interpretative phenomenological analysis. *Computers in Human Behavior, 51*, Part A, 539-545. doi:10.1016/j.chb.2015.05.015

Syväoja, H. E. I. D. I. (2014). Physical activity and sedentary behaviour in association with academic performance and cognitive functions in school-aged children. (Doctoral dissertation from Väitöskirjatutkimus). *Jyväskylä: LIKES–Research Reports on Sport and Health, 292*. doi:10.1371/journal.pone.0103559

Syväoja, H., Kantomaa, M., Ahonen, T., Hakonen, H., Kankaanpää, A., & Tammelin, T. (2013). Physical activity, sedentary behavior, and academic performance in Finnish children. *Medicine and Science in Sports and Exercise, 45*(11), 2098-2104. doi:10.1249/MSS.0b013e318296d7b8

Syväoja HJ, Tammelin TH, Ahonen T, Kankaanpää A, Kantomaa MT (2014). The associations of objectively measured physical activity and sedentary time with cognitive functions in school-aged children. *PLoS ONE 9*(7): e103559. doi:10.1371/journal.pone.0103559

Taras, H., (2005). Physical activity and student performance at school. *Journal of School*

Health, 75(6), 214–218. doi:10.1111/j.1746-1561.2005.00026.x

Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners*. New Jersey, NJ: Pearson Education.

Tomporowski, P. D., Davis, C. L., Miller, P. H., & Naglieri, J. A. (2008). Exercise and children's intelligence, cognition, and academic achievement. *Educational Psychology Review*, *20*(2), 111-131. doi:10.1007/s10648-007-9057-0

Tomporowski, P. D., McCullick, B., Pendleton, D. M., & Pesce, C. (2015). Exercise and children's cognition: The role of exercise characteristics and a place for metacognition. *Journal of Sport and Health Science*, *4*(1), 47-55. doi:10.1016/j.jshs.2014.09.003

Tomporowski, P., McCullick, B., & Pesce, C. (2015). *Enhancing children's cognition with physical activity games*. Champaign, IL: Human Kinetics.

Tomporowski, P. D., McCullick, B. A., & Horvat, M. (2010). *Role of contextual interference and mental engagement on learning*. New York, NY: Nova Science Publishers, Inc.

Trost, S. G. (2007). *Active education: Physical education, physical activity, and academic performance*. Robert Wood Johnson Foundation. Retrieved from http://www.activelivingresearch.org/files/Active_Ed.pdf

Tyler, K., MacDonald, M., & Menear, K. (2014). Physical activity and physical fitness of school-aged children and youth with autism spectrum disorders. *Autism Research and Treatment,* 2014, Article ID. doi:10.1155/2014/312163

U.S. Department of Health and Human Services. (2000). *Healthy People 2010:*

Understanding and Improving Health. 2nd ed. Washington, DC: U.S. Government Printing Office.

Väistö, J., Eloranta, A. M., Viitasalo, A., Tompuri, T., Lintu, N., Karjalainen, P., Lampinen, E. K., Ågren, J., Laaksonen, D. E., Lakka, H. M., Lindi, V., & Lakka, T. A. (2014). Physical activity and sedentary behaviour in relation to cardiometabolic risk in children: cross-sectional findings from the Physical Activity and Nutrition in Children (PANIC) Study. *International Journal of Behavioral Nutrition and Physical Activity*, *11*(1), 1. doi:10.1186/1479-5868-11-55

van der Fels, I. M., te Wierike, S. C., Hartman, E., Elferink-Gemser, M. T., Smith, J., & Visscher, C. (2015). The relationship between motor skills and cognitive skills in 4–16-year-old typically developing children: A systematic review. *Journal of Science and Medicine in Sport*, *18*(6), 697-703. doi:10.1016/j.jsams.2014.09.007

van der Niet, A. G., Smith, J., Scherder, E. J., Oosterlaan, J., Hartman, E., & Visscher, C. (2015). Associations between daily physical activity and executive functioning in primary school-aged children. *Journal of Science and Medicine in Sport*, *18*(6), 673-677. doi:10.1016/j.jsams.2014.09.006

Van Dusen, D. P., Kelder, S. H., Kohl, H. W., Ranjit, N. & Perry, C. L., (2011). Associations of physical fitness and academic performance among schoolchildren. *Journal of School Health 81* (12) 733–740. doi:10.1111/j.1746-1561.2011.00652.x

Van Manen, M. (2007). Phenomenology of practice. *Phenomenology & Practice, 1*(1).

Retrieved from https://ejournals.library.ualberta.ca/index.php/pandpr/article/viewFile/19803/15314

Van Manen, M. (2014) *Phenomenology of practice. Meaning-giving methods in phenomenological research and writing*. Walnut Creek, CA: Left Coast Press, Sage.

van Rijswijk, M., Akkerman, S. F., Schaap, H., & van Tartwijk, J. (2016). Past perceptions and future expectations: Sensed dis/continuity at the start of teacher education. *Teaching and Teacher Education*, *58*, 99-108. doi:10.1016/j.tate.2016.05.002

Vazou, S., Gavrilou, P., Mamalaki, E., Papanastasiou, A., & Sioumala, N. (2012). Does integrating physical activity in the elementary school classroom influence academic motivation? *International Journal of Sport and Exercise Psychology*, *10*(4), 251-263. doi:10.1080/1612197X.2012.682368

Vazou, S., & Smiley-Oyen, A. (2014). Moving and academic learning are not antagonists: Acute effects on executive function and enjoyment. *Journal of sport & Exercise Psychology, 36*(5). doi:10.1123/jsep.2014-0035

Vygotsky, L. S. (1980). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Vygotsky, L.S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Wassenberg, R., Feron, F. J., Kessels, A. G., Hendriksen, J. G., Kalff, A. C., Kroes, M., Hurks, P. P. M., Beeren, M., Jelle J. & Vles, J. S. (2005). Relation between

cognitive and motor performance in 5□to 6□year□old children: Results from a large□scale cross□sectional study. *Child Development*, *76*(5), 1092-1103. doi:10.1111/j.1467-8624.2005.00899.x

Webster, C. A., Buchan, H., Perreault, M., Doan, R., Doutis, P., & Weaver, R. G. (2015). An exploratory study of elementary classroom teachers' physical activity promotion from a social learning perspective. *Journal of Teaching in Physical Education*, *34*(3), 474-495. doi**:**10.1111/obr.12285

Webster, C. A., Russ, L., Vazou, S., Goh, T. L. and Erwin, H. (2015). Integrating movement in academic classrooms: understanding, applying, and advancing the knowledge base. *Obesity Reviews, 16*(8), 691–701. doi:10.1111/obr.12285

Wells, S. L. (2012). Moving through the curriculum: The effect of movement on student learning, behavior, and attitude. *Rising Tide, 5*, 1-17. Retrieved from http://mat2012wells.pbworks.com/w/file/fetch/54431635/Wells,%20MRP.pdf

Westendorp-Haverdings, M. (2014). *Movement and cognition* (Doctoral dissertation, University of Groningen). Retrieved from https://www.rug.nl/research/portal/files/12588095/Thesis_Minus_Chapters5_6.pdf

Westendorp, M., Hartman, E., Houwen, S., Smith, J., & Visscher, C. (2011). The relationship between gross motor skills and academic achievement in children with learning disabilities. *Research in Developmental Disabilities*, *32*(6), 2773-2779.doi:10.1016/j.ridd.2011.05.032

White House Task Force on Childhood Obesity (2010). *Solving the problem of childhood*

obesity within a generation: Report to the President. Retrieved from http://www.letsmove.gov/sites/letsmove.gov/files/TaskForce_on_Childhood_Obesity_May2010_FullReport.pdf

Woolland, B. G. (2014). *The teaching of drama in the primary school*. New York, NY: Routledge.

Appendix A: Participant Interview Questions

Participant Interview Questions for
General Background Questions

1. Tell me a bit about your teaching career, such as how many years you have been teaching and in what types of settings.
2. Describe your training or professional development opportunities related to teaching physical education or physical activity
3. Can you please share your experiences with teaching physical activity and/or physical education?
4. How comfortable are you teaching physical skills and concepts?
5. How do you incorporate physical activity into your current school day?
6. How did you come across this KLP?

RQ 1: 1. How did the elementary education teachers experience using the kinesthetic learning plans (KLPs) to teach the Common Core?

Primary, semistructured interview questions will be asked to encourage participants to open up and discuss the lived experience. An initial open-ended question will be asked and follow up prompts as needed.

Possible follow-up prompts:

You mentioned...

Tell me more about…

Can you expand a little more on…?

7. Please talk a little about your current teaching position.
8. Please share a little about which Kinesthetic Learning Plan (KLP) you chose and why you chose that one.
9. How much time to you spend planning to teach the KLP?
10. Please tell me about how the KLP was introduced to students? (instructions, expectations)
11. Please tell me a little about how you taught the KLP (cues, directions, student roles)
12. How much time did it take to write a reflection on the KLP?
    a. What were some of your feelings?
    b. How did you feel about your ability to teach the KLP?

RQ 2: 2. What are the perceptions of the elementary education teachers about how students learn using Kinesthetic Learning Plan (KLPs) to teach the Common Core?

13. Within the context of learning, can you please share some of your feelings about how student were learning and how did that make you feel.
    a. How did students respond verbally to the KLP?
    b. How did student respond visually to the KLP?
    c. What knowledge did you gain from teaching the KLP?

    d. Now, that you have taught KLP, how has your thinking or understanding on the process changed?
14. Please talk about what you saw the students doing during the KLP.
15. Please tell me about what you heard the students discussing during the KLP.
16. How did you measure student understanding of the KLP, in other words, how did you know students were learning and demonstrating knowledge?
    a. Were you surprised (or not surprised) that students were able to learn the intended concepts of the KLP?
17. Within the context of learning, did you observe any student behaviors or comments that surprised you?
18. Within the context of student learning how do you believe your students experienced the process of learning?
    a. Any surprises?
    b. Any frustrations?
    c. Irritations?
19. Did anything surprise you about yourself teaching the KLP?
20. Did anything surprise you about your students as learners?

Appendix B: Twitter Broadcast

Outgoing Twitter Message:

Wanted for Research Study: GE elementary teachers who use movement to teach the CCSS. Visit [redacted] for more information.

Appendix C: Announcement for Professional Organization

You are invited to take part in a research study designed to better understand elementary GE teachers as they teach the CCSS using kinesthetic movement and make meaning of these experiences. The research questions that guided this study were developed based on concerns about the decreasing opportunities that students have to physically move within typical school day. The researcher is inviting experienced teachers with at least 2 years of teaching experience in general elementary education who are willing to use kinesthetic learning plans as part of a purposeful sample to be in the study.

For additional information about the study and completing a consent to participate, please visit [redacted]

This study is being conducted by a researcher named Heidi C. Erickson, who is a doctoral student at Walden University.

Appendix D: Invitation to Participate

You are invited to take part in a research study designed to better understand elementary GE teachers as they teach the CCSS using kinesthetic movement and make meaning of these experiences. The research questions that guided this study were developed based on concerns about the decreasing opportunities that students have to physically move within typical school day. The researcher is inviting experienced teachers with at least 2 years of teaching experience in general elementary education who are willing to use kinesthetic learning plans as part of a purposeful sample to be in the study.

Background Information:

The purpose of this study is to gain insight into the lived experiences and perceptions of elementary education teachers who teach Common Core using kinesthetic movement, as an innovative teaching strategy. In particular, I am interested in hearing their ideas and experiences and in teaching strategies as they use movement for instructing their students in the Common Core. The research questions that guided this study were developed based on concerns about the decreasing opportunities that students have to physically move within typical school day.

For additional information about the study and completing a consent to participate, please visit [redacted]

This study is being conducted by a researcher named Heidi C. Erickson, who is a doctoral student at Walden University.

Appendix E: Screen Shot of Informational Page

Background Information

The purpose of this study is to gain insight into the lived experiences and perceptions of elementary education teachers who teach Common Core using kinesthetic movement, as an innovative teaching strategy. In particular, I am interested in hearing their ideas and experiences and in teaching strategies as they use movement for instructing their students in the Common Core. The research questions that guided this study were developed based on concerns about the decreasing opportunities that students have to physically move within typical school day.

The Project

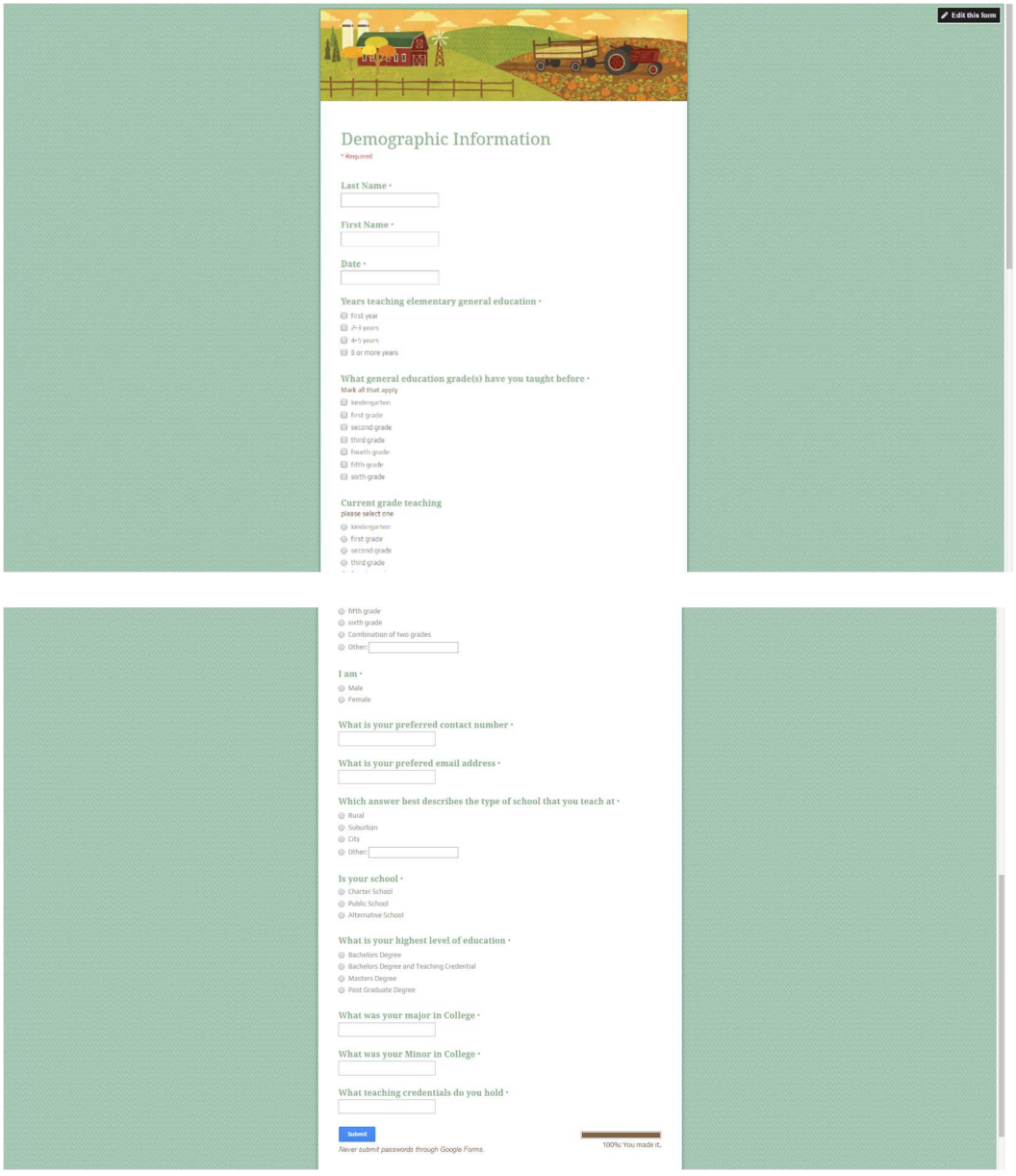
You are invited to take part in a research study designed to better understand elementary general education teachers as they teach the Common Core State Standards (CCSS) using kinesthetic movement The researcher is inviting experienced teachers with at least 2 years of teaching experience in general elementary education who use kinesthetic learning plans (KLPs) as part of a purposeful sample to be in the study.
Click the "click here to participate" button to take part in this project.

CLICK HERE TO PARTICIPATE

Appendix F: Demographic Questions

1. What is your gender: Male Female Other
2. How many years have you taught elementary general education?
3. What elementary general education grades have you taught?
4. What is the current grade you are teaching?
5. Do you teach in a rural, suburban, or a city school?
6. Is your school a Charter/Public/Alternative school?
7. What is your highest level of education?
8. What was your major(s) in college?
9. What was your minor(s) in college?
10. What credential(s) have you earned?

Appendix G: Screen Shot of Google Doc Link



Edit this form

Demographic Information

* Required

Last Name *

First Name *

Date *

Years teaching elementary general education *
- first year
- 2-4 years
- 4-5 years
- 5 or more years

What general education grade(s) have you taught before *
Mark all that apply
- kindergarten
- first grade
- second grade
- third grade
- fourth grade
- fifth grade
- sixth grade

Current grade teaching
please select one
- kindergarten
- first grade
- second grade
- third grade
- fifth grade
- sixth grade
- Combination of two grades
- Other:

I am *
- Male
- Female

What is your preferred contact number *

What is your prefered email address *

Which answer best describes the type of school that you teach at *
- Rural
- Suburban
- City
- Other:

Is your school *
- Charter School
- Public School
- Alternative School

What is your highest level of education *
- Bachelors Degree
- Bachelors Degree and Teaching Credential
- Masters Degree
- Post Graduate Degree

What was your major in College *

What was your Minor in College *

What teaching credentials do you hold *

Submit

100% You made it.

Never submit passwords through Google Forms.

Appendix H: Confidentiality Agreement

CONFIDENTIALITY AGREEMENT

Name of Signer: [redacted].

During the course of my activity in collecting data for this research: "Elementary Teachers' Perceptions of Teaching Common Core State Standards through Kinesthetic Learning Strategies" I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement, I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

[redacted]