THE IMPACT OF POLICY ON PRACTICE IN ELEMENTARY SCHOOL PHYSICAL EDUCATION IN THE BERGLING SCHOOL DIVISION IN VIRGINIA

by

Kimberly Spivack

A Dissertation
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of
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DEDICATION

I dedicate this study to my family who encouraged and supported me throughout this journey. To my husband, Peter Spivack, for his enduring love and patience. To my Mom, Dad, and stepparents who may not have understood what it was I was doing and why it was taking so long, yet never stopped believing that one day I would finish this thing! I thank God for giving me the confidence in my abilities and the strength to persevere regardless of the curve balls life threw at me along the way. Lastly, I thank my dog Bailey. He was with me every day as I wrote this dissertation. He never complained, he gave me a reason to smile, and he got me up out of my seat to play!

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LIST OF ABBREVIATIONS

Adequate Yearly Progress..... AYP
Australian Bureau of Statistics Index of Relative Socioeconomic Advantage and Disadvantage..... SEIFA
Body Mass Index .....BMI
Early Childhood Longitudinal Survey ..... ECLS
Health Fitness Zone .....HFZ
Individualized Education Program ..... IEP
National Association for Sport and Physical Education ..... NASPE
National Center for Educational Statistics .....NCES
No Child Left Behind..... NCLB
Physical Education.....FCPS
President's Council on Physical Fitness .....PCPF
Socio-Economic Status.....SES
Standards of Quality ..... SOQ
Time for Teaching.....TTT
U.S Department of Health and Human Services ..... HHS
U.S. Centers for Disease & Prevention.....CDC

ABSTRACT

THE IMPACT OF POLICY ON PRACTICE IN ELEMENTARY PHYSICAL EDUCATION IN THE BERGLNG SCHOOL DIVISION IN VIRGINIA

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George Mason University, 2014

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Federal, state, and local school policies since the No Child Left Behind (NCLB) Act of 2001 have increased the focus on student achievement. Subjects such as physical education have become less of a priority. At the same time, childhood obesity is a serious public health problem. Virginia schools provide an opportunity for student to learn about the importance of being physical activity and knowledge to lead an active life through physical education class.

The purpose of the study was to explore elementary physical education teachers' in the Bergling School Division (a pseudonym) in the Commonwealth of Virginia implementation of the physical education curriculum, and their knowledge of the state and local school division physical education policies. In addition, the study examined their perceptions of factors to implementing the curriculum.

A survey was administered to a population of elementary physical education teachers in the Bergling School Division. Part one of the survey included factors to

curriculum implementation. Part two of the survey included items related to the teachers' application of the curriculum and understanding of policies.

The results were analyzed using quantitative methods to determine if relationships exist between factors to curriculum implementation and specified teacher demographics, setting, and perception of policy. Findings from the survey data show teachers are using the physical education curriculum to teach, but lack competence in the policies that guide how the subject is implemented. Furthermore, teachers sight lack of time with students, class size, and low priority for physical education as factors to curriculum implementation.

I. INTRODUCTION

The No Child Left Behind (NCLB) Act of 2001 increased the focus on student achievement in subjects such as math and reading. Although NCLB is silent on physical education, this federal law influenced state provisions for physical education, such as in the Virginia Standards of Quality (SOQ) for Education. As one example, proposed legislation in Virginia to increase time for physical education at the elementary level was negatively impacted by the drive for student achievement in NCLB's reading and math expectations. According to the Code of Virginia, the Board of Education is required to establish Standards of Learning for math, reading, science, and social studies. Curricula for core subjects are supposed to align with the Standards of Learning, and students are to be assessed on the essential knowledge prescribed by the standards. There are Standards of Learning for physical education as well, and school divisions are supposed to align physical education curricula to those standards. However, nothing in the Code of Virginia states that school divisions must assess, nor be held accountable for, student achievement on the Standards of Learning in physical education. Physical education is mentioned in Virginia code as part of the required program of instruction in schools, so school divisions must at least offer physical education as a subject at the elementary level. School divisions in the Commonwealth of Virginia are responsible for teaching and assessing students in the core areas, and for showing student achievement on the

Standards of Learning, but are not held responsible for student achievement or knowledge in physical education. Policies in the Bergling School Division align with the state and federal agendas for student achievement and as a consequence limit the emphasis on physical education (Code of Virginia, "Standards of Quality. Standard 1. Instructional programs supporting the Standards of Learning and other educational objectives," § 22.1-253.13.1).

This chapter outlines the impact of NCLB on state and local school division policies and regulations pertaining to elementary physical education. In addition, facts about the childhood overweight and obesity crisis are included in this chapter. The Sense-Making Methodology is defined and applied to a physical education teacher's perspective of how curriculum is implemented within the parameters of school policy. National recommendations for physical education in elementary schools and physical activity guidelines for children are discussed.

Background

No Child Left Behind: Impact on Public Elementary Schools in Virginia

The No Child Left Behind Act became law in 2002. NCLB, formerly the Elementary and Secondary Education Act, was devised to hold schools more accountable for student achievement. Core subjects such as reading and math became the focus, and standardized tests were created to monitor student achievement (NCLB, Pt. E § 1501, 2002). If a school does not meet a required percentage pass rate in any given test area, the school does not make adequate yearly progress (AYP), which is used to judge if schools are successful in educating students. By the fall of 2014, all students must reach

proficient levels as measured by performance on state standardized tests. In order to meet the goal, states must have benchmarks in place for how students will improve yearly to meet the goal of 100% proficiency by 2014 in reading and math. Any schools not meeting AYP face certain sanctions. States have some flexibility over what the sanctions will be for schools that do not meet AYP, which may include loss of federal funding, school choice provisions for parents, free tutoring, and ultimately state takeover of the school (NCLB, Pt. A, § 1116, 2002).

Not all researchers agree on the strategies legislated through NCLB. According to Hursh,

> NCLB, like other recent education policies promoting standardized testing, accountability, competition, school choice, and privatization, reflect the rise and dominance of neoliberal and neoconservative policy discourses over social democratic policy discourses. Moreover, many neoliberals argue that standardized testing will increase educational opportunity and ensure greater assessment objectivity than teachers provide. (2011, p. 495)

In fall 2013, with 2014 approaching, the school leaders in the Virginia Department of Education applied for and received a waiver from the provision requiring that 100% of students achieve proficiency. This waiver's flexibility allows states to set their own goals for closing student achievement gaps and making sure that students are achieving proficiently in math and reading. States that receive the waiver have the flexibility to create a strategic plan for underperforming schools. To obtain the waiver, state officials needed to document that individual school divisions would implement a new method for

teacher evaluation. A portion of this evaluation had to directly connect to student achievement. In other words, the state waiver helped Virginia schools escape the 100% pass rate to meet AYP, but still holds the schools responsible for student achievement in core academic areas.

Some analysts argue that there will be unforeseen consequences of these actions, for example,

> The emphasis on student achievement in core content areas since NCLB and with the new Virginia teacher evaluation system makes other curriculum areas less of a priority. Because of the pressure to raise test scores, particularly in the urban school districts, teachers are compelled to teach the skills and knowledge that will be tested, neglecting more complex aspects of the subject and, indeed, some subjects all together. (Hursh, 2007, p. 506)

Physical Education is neglected because it is a non-tested content making it less of a priority. Physical education is a state requirement in Virginia, but there are no standardized tests to assess student achievement in the subject area. Therefore, in terms of the reporting requirements of NCLB, schools do not need to ensure students are achieving the knowledge and skills associated with the physical education curriculum, making the subject less of a priority.

> Specific to policy addressing physical education in school settings, currently one of the most significant constraints is the intense pressure on schools for students to perform well on standardized tests in reading and math so the school will make

> adequate yearly progress as defined by the federal No Child Left Behind Act of 2001. (Brownson, Chriqui, Burgeson, Fisher, & Ness, 2010, p. 441)

In the Commonwealth of Virginia school districts are referred to as school divisions. In Virginia's Bergling School Division (BSD) (a pseudonym) all elementary schools are required to schedule120 minutes of daily, uninterrupted language arts time. Math is required for one hour per school day. Science is required for four hours per week. Social studies is required for at least four hours per week. There are approximately six and a half hours in a school day. Taking into account lunch and recess, this leaves about an hour per day for special subject areas, such as art, music, and physical education.

Code of Virginia – Standards of Quality for Elementary Physical Education

Provisions at the state level guide school divisions in the Commonwealth of Virginia on how to establish their own policies and regulations for special subjects, such as physical education. Physical education is a state requirement as outlined in 22.1-213 of the Code of Virginia:

> In the elementary grades of every public school the following subjects shall be taught: spelling, reading, writing, arithmetic, grammar, geography, health and physical education, drawing, civil government, history of the United States and history of Virginia. Physical education shall include activities such as, but not limited to, cardiovascular, muscle building, or stretching exercises, as appropriate. (Code of Virginia, "Standards of Quality. Definitions," §§ 22.1-213)

Another section of code reads, "Local school boards shall employ five full-time equivalent positions per 1,000 students in grades kindergarten through 5 to serve as

elementary resource teachers in art, music, and physical education" (Code of Virginia, "Standards of Quality. Standard 2. Instructional, administrative, and support personnel," §§ 22.1-253.13:2). This means that school divisions are obligated to assure that there are enough special subject teachers to accommodate 1,000 students in art, music, and physical education from grades K-5. However, the statement does not explain what a school division's staffing obligation is if the elementary school goes through grade 6, which is the case in almost all of the elementary school in the Bergling School Division. Furthermore, there is nothing in the code that explains how the 5 positions per 1,000 students are to be divided among the special subjects (art, music, and physical education). In addition to the number of students physical education teachers see in a week, another section of code defines what type of services special education students need:

> special education means specially designed instruction at no cost to the parent, to meet the unique needs of a disabled child, including classroom instruction, home instruction, instruction provided in hospitals and institutions, instruction in physical education and instruction in career and technical education. (Code of Virginia, "Standards of Quality. Definitions," §§ 22.1-213)

This means that special education students are required to have physical education just as their general education peers.

The statutes in the Code of Virginia are up for revision every two years by the Virginia General Assembly (the state legislature). In addition, the General Assembly has the capacity to add codes to the SOQ for Education. This happened in 2011 when two bills were presented to the Virginia General Assembly to increase the requirements for

physical fitness time in elementary schools. Two companion bills (VA Senate Bill 803 and House Bill 1710) were introduced by Senator Ralph Northam and Delegate Algie T. Howell, Jr. Both bills included a statement that150 minutes per week of physical fitness would be required for students in all Virginia public elementary schools. The statement meant that various forms of physical activities, such as recess time and classroom physical activity breaks, could count toward the 150 minutes of physical fitness time. The bills were referred to the respective committees in the Virginia Senate and House of Delegates. Later in the 2011 session, Senator Northam and Delegate John O'Bannon incorporated SB 803 and HB 1710 into two new bills, SB 966 and HB 1644. The word *fitness* was changed to *education*, which in turn meant that the 150 minutes per week had to be implemented through physical education class. Governor McDonnell vetoed this bill.

The following year, in 2012, Senator Northam introduced a new bill, Virginia Senate Bill 471. This bill passed the Senate, and the companion bill, House Bill 1092, passed in the House of Delegates. The new language in this bill included: "Requires the Board of Education to promulgate regulations governing physical education requirements in public schools. The Board shall promulgate the regulations to be effective beginning with the 2015-2016 school year" (Virginia Senate Bill 471, 2012, para. 2-3). The Governor vetoed the bill, citing the following reason:

> Pursuant to Article V, Section 6, of the Constitution of Virginia, I veto Senate Bill 471. As Governor, I have worked with the Virginia Department of Health and the Virginia Foundation for Healthy Youth in the effort to curb childhood obesity. It

> is an issue important to all Virginians and I applaud the work of Senator Northam and interested parties in their attempt to address this problem. However, solutions to childhood obesity cannot include additional regulations that will place significant unfunded mandates on local school divisions. This bill without all of the amendments I proposed creates the inference of required physical education programs in public schools, which we cannot require at this time. Accordingly, I veto this bill. (Virginia Senate Bill 471 Governor's Veto, 2012, para. 1-2)

Table 1 is a timeline of key legislation pertaining to physical education at the elementary school level in Virginia public schools since 2011. It is important to note that the Governor cited childhood obesity as a problem, but vetoed the bill citing lack of funding and additional regulations on schools. Furthermore, there were slight differences in the language of the bills over time. At one point, the one bill referred to 150 minutes of *physical fitness*, whereas in other bills the term *physical education* was used. Changing the word *education* to *fitness* opens up room for interpretation as to how the bill, if passed, would be implemented. Fitness can be woven into the school day, which means it could occur via recess or through classroom physical activity breaks in addition to solely through physical education class. Furthermore, there is nothing in the language of the bills that prohibits school divisions from including before- and after-school physical activity-related programs in to the 150 minutes per week.

Table 1

Chronology of Physical Education/Fitness Legislation in Virginia 2011-2012

Date	Bill #	Content	Action
01/05/11	SB803	Requires at least 150 minutes of physical **fitness** (emphasis added) per week on average for grades K through 5 and 225 minutes per week on average for grades 6 through 8 during the regular school year, with a similar goal for high school students. Physical fitness may include (i) physical education classes, (ii) extracurricular athletics, or (iii) other programs and physical activities deemed appropriate by the local school board. This bill was incorporated into SB 966.	Sent to Committee for Education and Health
02/17/11	SB966	Requires at least 150 minutes of physical **education** (emphasis added) per week on average during the regular school year for grades K through 8, with a similar goal for high school students. This requirement would go into effect beginning with the 2014-2015 school year and would not apply to any half-day kindergarten. This Bill incorporates SB 803 and SB 934.	02/17/11 Passed by Senate and House as the Act to Amend Code of VA 22.1-253.13:1
02/11	SB966	"Pursuant to Article V, Section 6, of the Constitution of Virginia, I veto Senate Bill 966, which would require 150 minutes of physical education per week in Virginia's public schools. This requirement would place a significant unfunded mandate on local school divisions. While the goal of increasing physical activity by our young people is laudable and important, this approach is overly burdensome on local school divisions at this time, and does not align with the higher priorities of increasing time in the classroom spent on math, science, reading, history and other important subjects. Accordingly, I veto this bill."	Governor McDonnell Vetoes the Bill
04/09/12	SB471	"Requires the Board of Education to promulgate regulations governing physical education programs in public schools. The Board shall promulgate the regulations to be effective beginning with the 2015-2016 school year." Also requires that "the Board of Education, in promulgating the regulations pursuant to this act, shall work with the American Heart Association, the American Cancer Society, the American Academy of Pediatrics, Virginia Chapter, the Virginia Association of School Superintendents, the Virginia School Boards Association and other interested stakeholders."	Governor McDonnell Vetoes the Bill

Bergling School Division and Elementary Physical Education Policies

During the time the Virginia General Assembly was debating the physical education/fitness bills, the Bergling School Division was reviewing a policy and underlining regulation for physical education, art, and music. For the purposes of this study, the policy and the accompanying regulation are referred to as the one governing time for teaching (TTT) in special-subject disciplines (art, music, and physical education). The TTT regulation requires a minimum of 60 minutes per week for physical education ("Time Allocations for Instruction," Bergling School Division, 2011, 3218.1). In March 2013, the TTT regulation was revised to include the same minimum of 60 minutes of physical education per week, but a new statement was added that schools will:

> Ensure physical education teachers provide no fewer than two instructional segments totaling a minimum of 60 minutes of instruction weekly for students in kindergarten through grade six. Two or more instructional segments totaling a minimum of 90 minutes is the recommendation. Section 22.1-253.13:1 of the Code of Virginia recommends that students participate in 150 minutes of physical activity weekly provided by physical education, extra-curricular activities, or other programs and physical activities. ("*Elementary School Art, Music, and Physical Education Program*," Bergling School Division, 2013, 3218.2)

Although the regulation was revised, and new language was added recommending 90 minutes, the minimum time for physical education remains 60 minutes per week in the Bergling School Division. The language leaves school administrators with the flexibility to adjust the time for physical education as they see fit for their schools between 60 and

90 minutes. Furthermore, the 90-minute recommendation still does not meet the 150 minutes per week that is recommended by the National Association for Sport and Physical Education (2011, p. 2).

In 2012 the Virginia General Assembly reviewed the bill to increase physical education for elementary students to 150 minutes per week and requested the Office of Budget Services in the Bergling School Division put together an impact statement regarding if this bill were to pass. Table 2 outlines the annual cost to the school division.

Table 2

Impact of 150 Minutes of Physical Education at the Elementary Level in the Bergling School Division

Area of Impact	Quantity of Impact	
Bergling School Division - 2012 Budget (Art/Music/Physical Education)	689.60 Teachers	
Cost for Physical Education Teachers	229.87 Teachers	
Average amount of Physical Education provided per week	60 Minutes	
Amount required by proposed bill	150 Minutes	
Additional required	2.142857143	Factor
Additional PE teachers required (PE * Factor – PE)	$70,419	
Total Cost	$18,499,453	

Note. Adapted from "Impact of Additional Physical Education" by the Bergling School Division, 2011, Bergling School Division, Office of Budget Services.

Current staffing at the elementary level allows for 60 minutes of music and 60 minutes of physical education per week. The staffing formula for art permits 40 minutes of art per week for Kindergarten, 60 minutes per week for grades 1-3, and 80 every other week for grades 4-6. Assuming that the staffing formula for the special subject areas is equally split among the three disciplines of art, music, and physical education, in order to provide physical education for 150 minutes per week, the school division would need to double

the current number of physical education teachers. Assuming one third of the current staffing needs come from physical education (approximately 230 positions), an increase to 150 minutes per week means the school division would need to hire approximately 262.7 additional physical education teachers. The cost of these additional positions means an estimated $18.5 million per fiscal year for the school division. The Bergling School Division could not absorb the cost and did not have the time or space to support additional physical education in elementary schools. This is particularly important for this current study because the physical education teachers in the school division studied for this research must implement a large curriculum in 60 minutes per week.

The Importance of Physical Education in Elementary Schools

Information about the importance of physical education was included in *Healthy People 2010*, a report written by representatives from the Centers for Disease Control and Prevention (CDC, 2010) and the President's Council on Physical Fitness (PCPF). The report contains hundreds of objectives that serve as a framework for improving the health of all people in the United States during the first decade of the 21st century. One of the objectives is to increase physical education in schools. According to the report, "Participation in school physical education ensures a minimum amount of physical activity and provides a forum to teach physical activity strategies and activities that can be continued into adulthood" (CDC & PCPF, 2010).

Another report, *Shape of the Nation Report: Status of Physical Education in the USA* by the National Association for Sport and Physical Education (NASPE, 2012)

provided current information about the status of physical education in each of the United States. The following areas were examined:

- Time Requirements
- High School Graduation Requirements
- Exemptions/Waivers and Substitutions
- Physical Activity
- Local School Wellness Policy
- Standards, Curriculum and Instruction
- Class Size
- Student Assessment and Program Accountability
- Body Mass Index (BMI) Collection
- Physical Education Teacher Certification/Licensure
- National Board Certification in Physical Education
- State Physical Education Coordinator Requirements. (p. 6)

Included in the report are results of an online survey of physical education Coordinators in 50 states and the District of Columbia. The results of the survey indicated that there are differences both between and within states regarding how and if physical education is taught to students. Furthermore, state policies are not specific, leaving room for interpretation at the local school division level.

The NASPE researchers point out a connection between physical education and future participation in physical activity, stating that children who have the necessary skills to be successful will be more apt to seek out opportunities to be physically active.

Furthermore, “the focus [of physical education] has shifted to a more equitable curriculum that stresses performance and personal challenges, high levels of fitness that support good health and exposure to a variety of sport and fitness activities” (2012, p. 4).

Physical education class is one place to teach children about the importance of being active and living a healthy lifestyle. According to the NASPE 150 minutes of physical education per week should be required in all elementary schools. NASPE researchers are clear in their position about the importance of physical education as part of the required daily minutes in addition to just physical activity, stating that, “Quality physical education is an essential element in the formative growth of children. At a minimum, it assures some degree of regular physical activity for school-aged students” (p. 4). They also clarify the distinction between physical education and simply being active:

> Physical education is a planned instructional program with specific objectives. An essential part of the total curriculum, physical education programs increase the physical competence, health-related fitness, self-responsibility, and enjoyment of physical activity for all students so that they can establish physical activity as a natural part of every day life. (p. 9)

Disparities in Physical Education Requirements

In the 2012 report discussed above, NASPE representatives found 43 out of 51 (50 states and the District of Columbia) require elementary physical education. Thirty-four state physical education coordinators replied that their state requires a minimum of 60 minutes per week for elementary physical education. Three out of 51 (18.8%) states

and the District of Columbia require the recommended 150 minutes per week of physical education at the elementary school level. Twenty-six states (53.1%) require physical education grades be given and included in a student's GPA. More than 50% of the states permit students to replace physical education with alternate activities for credit. Online physical education credit is acceptable in 30 states (59%). Of those 30 states, 17 require the online instructor to be certified to teach physical education. Teacher licensure is required for elementary school physical education teachers in 40 out of 51 states.

There is no federal law requiring physical education in schools. State governments have the authority to decide what is and what is not required, and have the option to give the authority to local school districts. Parsad and Lewis note that "Public elementary schools (nationwide) reported averages of 2.4 to 2.6 days per week of physical education across elementary grades" (2006, p. 18-19). Nationwide, the mean percentage of physical education class time for elementary-age students per week at the time of their study was roughly 85 minutes.

In the Bergling School Division, there are no regulations that provide a specific ratio for physical education class size. The only reference to class size for physical education is that the administrator must attempt to maintain normal class size in special subjects (to include physical education). Most of the 139 elementary schools in the Bergling School Division have two full-time physical education teachers working in tandem in the same gym with two or more classes of students at a time. Special education students are included with general education students in physical education class, unless

their Individualized Education Plan (IEP) denotes a need for a self-contained physical education class.

Childhood Obesity

Ogden, Carroll, Kit, & Flegal (2012) conducted a cross-sectional analysis on being overweight and obesity among a sample of children and adolescents in the United States in 2010 (birth through 19 years of age). The weights and heights of the sample population were obtained from the *National Health and Nutrition Examination Survey 2009-2010*.

> Among preschool children aged 2-5, obesity increased from 5.0% to 10.4% between 1976–1980 and 2007–2008 and from 6.5% to 19.6% among those aged 6-11. Among adolescents aged 12–19, obesity increased from 5.0% to 18.1% during the same period. (p.1)

Overweight and/or obesity results when caloric input exceeds caloric output. When children do not partake in enough physical activity to expend the amount of food they intake, excess calories are stored as fat. This excess fat, which causes children to be overweight and/or obese, contributes to risks for many health-related problems and chronic diseases. Heart disease, high blood pressure, high cholesterol, breathing problems (such as sleep apnea and asthma), and Type 2 diabetes are chronic diseases linked to obesity. Children, not just adults, are at risk for developing these diseases if they are overweight or obese.

Looking at the first part of the 21st century, the increase in childhood obesity is evident, and the health-related consequences are being reported. Furthermore, "when one

is obese as a child, it increases the likelihood of one being an obese adult" (Brownson et al., 2010, p. 441). Low-intensity activity, such as watching television, combined with little active movement time does not ensure that the calories taken in are expended in a high enough capacity to prevent weight gain. To prevent childhood overweight and/or obesity students need to have daily physical activity. Sedentary activities, such as sitting at a desk or sitting while playing video games, should be done in moderation.

Understanding the health implications that may result when children are overweight and/or obese is important for this study because physical education class provides a during-the-school-day opportunity for children to be physically active. In addition, the physical education curricula include concepts and skills that students learn that can help guide them to make healthy choices throughout their lives.

Sense-Making Theory and Conceptual Framework

There is currently a serious public health problem in that children are becoming increasingly overweight and/or obese. Schools provide an opportunity for students to have time for physical activity and to gain the skills and cognitive knowledge about being physically active through physical education class. Since NCLB, federal, state, and local school division policies have changed how the schools are structured, especially pertaining to increased focus on student achievement in academics. Furthermore, unaligned federal, state, and local school policies can be a source of confusion to the teachers tasked with implementing curriculum within the parameters of the policies. In this study, the policies are those pertaining to elementary physical education in the Commonwealth of Virginia, within the Bergling School Division.

The conceptual framework most useful to discuss this issue is the sense-making framework. Gaps in knowledge can exist in any business, organization, and in schools. Whenever there is a gap in knowledge, a person or group has to pull from personal experiences, or from the resources they have at hand, to make sense of what they are trying to do. In the school setting, people who create policy may not be the same as the people implementing the curriculum under the parameters of the policy. The policy maker lacks some of the knowledge that the implementer holds, and vice versa. In this study, the focus is on the implementers who are the elementary physical education teachers in the Bergling School Division.

Sense-making theory can be applied to education policy and practice as a way to understand how teachers interpret policies in order to implement instruction. According to Datnow and Park, "There is a mutual dependence between policy and practice; policy relies on implementers to realize goals while practice depends on policy to frame action and offer recourses" (Datnow and Park, 2009, p. 350). Teachers cognitively process policy expectations to their specific school environments and pull from their individual experiences to make sense of the policy and how to implement it. Datnow and Park explain that, "people's actions cannot be understood apart from the setting in which the actions are situated; reciprocally, the setting cannot be understood without understanding the actions of the people within" (Datnow and Park, p. 350). Therefore, practice and policy intersect and are informed by one another.

The sense-making theory is appropriate for this study because policies guide physical education instruction in the Bergling School Division, and the elementary

physical education teachers are required to implement these policies in their schools. Furthermore, each school has unique characteristics, and the elementary physical education teachers have their own experiences to pull from when interpreting and implementing state and local school division policies. Studying teachers' perceptions of how policy impacts their practice can provide school leaders with important information on how teachers make sense of the context in which they teach and how they interpret policy.

Dervin, Foreman-Wernet, and Lauterbach (2003) explained that, "the facing of gaps and building of bridges is sense-making's central metaphor" (p. 238). Dervin et al. believe there are many ways to bridge gaps, and created Figure 1 to illustrate how individuals face gaps, and build bridges to fill in the gaps. Adapted for this study, the person in Figure 1 represents the physical education teacher moving toward a gap. Under the teacher's feet is a box labeled *situation*. The situation in this scenario is the physical education teachers' prior experiences, including their education, work experiences, and their life experiences such as with family and friends. The situation includes the school he or she teaches in as well. For example, the student demographic, the parent involvement, and the relationships among staff make up the situation. In front of the teacher is a gap or opening in the ground. The gap represents the obstacles and challenges the teacher faces in his or her school as a physical education teacher. The gap may include the policies and underlining regulations guiding the curriculum and structure for instructional delivery. Inside of the gap is a box with the words *verbing* and *sense-making.* The physical education teacher tries to make sense out what he or she finds in

the gap, using what is known about the school and past experiences to help *bridge* the gap. The box above the gap says *bridge*. In this box are words such as *ideas, attitudes, feelings, memories, and intuitions.* This is the teacher's perception of his or he current situation, which is influenced by prior experiences. Once over the gap, there is a box called *Outcomes.* Words such as *helps, dysfunctions, impacts, and effects* are listed in this box. Whatever modifications the teacher made to help get over the gap directly impact outcomes. In this case the outcome is curriculum delivery and the recipients of the teacher's sense-making journey are the students.

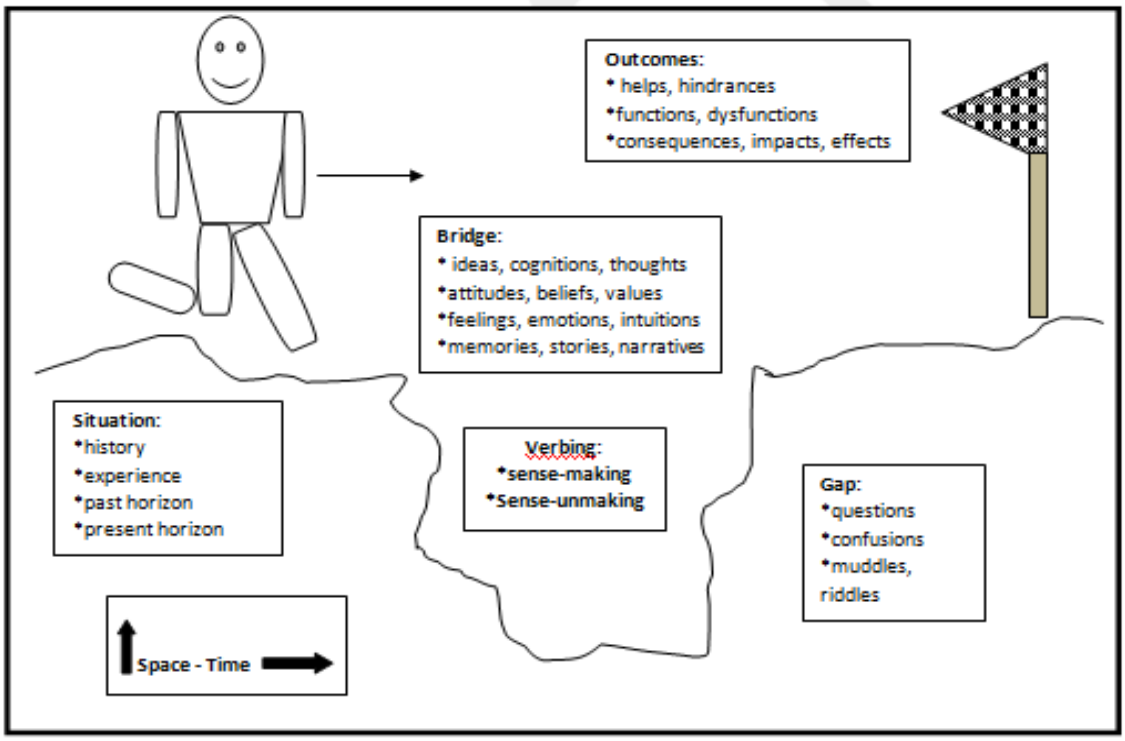

Figure 1. Drawing of the Sense-Making Metaphor. Moving across time and space, facing a gap, building a bridge across the gap, and then constructing and evaluating the uses of the bridge. Adapted from *Sense-Making Methodology Reader: Selected Writings of Brenda Dervin* by B. Dervin, L. Foreman-Wernet, and E. Lauterbach, p. 238. Copyright 2003 by Hampton Press.

The theory of sense-making informed the conceptual framework for this study because the focus was on gathering teacher perceptions of how they implement elementary physical education curriculum within the guidelines of local and state policies and regulations. The information gathered from this study may shed light on how teachers make sense out of what they teach. Moreover, the findings may provide information about how they deliver the curriculum within the parameters of policy.

Study Purpose and Research Questions

The purpose of the study was to explore elementary physical education teachers' in the Bergling School Division (a pseudonym) in the Commonwealth of Virginia implementation of the physical education curriculum, and their knowledge of the state and local school division policies pertaining to physical education. In addition, the study examined elementary physical education teachers' perceptions of potential factors to implementing the curriculum in their respective schools.

In Virginia, state statutes and school division policies pertaining to physical education in elementary schools limit the amount of time and resources available for students to be physically active as well as physically educated. Differences in class size, master schedules, and student demographics between schools in the same school division exist. Furthermore, when students come to physical education inconsistently and for short periods of time, it may be difficult for physical education teachers to implement the curriculum in the same manner. Other factors include the priorities set forth by the school division, which are guided by the Virginia Department of Education.

To understand how the physical education teachers in a large suburban school division are making sense of implementing curriculum the following research questions were explored:

- To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum?
- To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?
- As a result, how are elementary physical education teachers implementing curriculum in their schools?
- To what extent do specified teacher demographics account for differences in elementary teachers' use of the physical education the curriculum?
- To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?

2. LITERATURE REVIEW

The focus of this literature review begins with a discussion of childhood obesity. This background is essential to the study because physical education is the only curriculum embedded in the school day that teaches knowledge and physical skills as well as provides time for students to partake in physical activity. After this section, student achievement and physical fitness levels are explored. Physical education class provides the venue for students to move, which may stimulate brain function, and has the potential for increasing physical fitness levels.

In subsequent sections of this chapter recommendations from expert organizations on the appropriate amount of time for physical education at the elementary school level are presented. In addition, research focused on teacher motivation, obstacles, and challenges is examined. How teachers perceive their jobs, including what challenges they face in their schools, is important because these challenges may impact how they implement policies.

Background to Childhood Obesity

Childhood Overweight and Obesity

Obesity is a serious issue for children, adolescents, and adults. Scholarship on children being overweight and obese is abundant. Some studies focus on the foods children eat, or the amount of time they use multimedia (TV, computer, video games),

and others focus on the amount of physical activity. All three of these topics can be linked to childhood obesity. Researchers Ogden et al. (2012) used the National Health and Nutrition Examination Survey (NHANES) data from the Centers for Disease Control and Prevention (CDC) to find trends in obesity from 1963 to 2010 from a representative sample of 4,111 children and teenagers. The data were gathered by NHANES through a series of home interviews in which families were asked to report their children's height and weight measurements. Changes to childhood and adolescent obesity were examined by comparing the difference in the prevalence if childhood obesity in 2009/10 and previous years. Ogden et al. conducted a cross-sectional analysis of the data. Figure 2 depicts trends in obesity among children and adolescents by age group. The information gathered from the data shows an increase from below 10% in the 1960s to just below 20% in 2007-2008 for ages 6-11 and ages 12-19 respectfully. Obesity rates in children ages 2-5 increased as well, "However, the rate for this age group remains less than ten percent according to the data sample" (Ogden, & Carroll, 2010, p. 484).

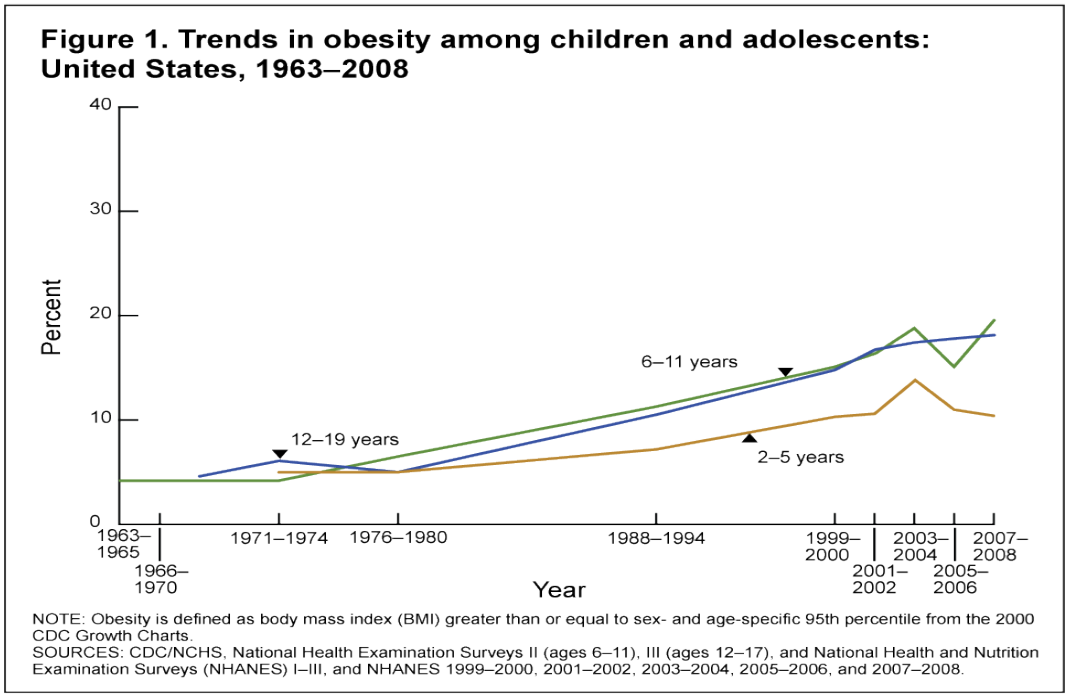

Figure 2. Chart of the trends in obesity among children and adolescents in the United States between 1963-2008. From "Prevalence of Obesity and Trends in Body Mass Index Among US Children and Adolescents," by C. Ogden, M. Carroll, B. Kit, and K. Flegal, 2012, *Journal of the American Medical Association, 307*(5), p. 3.

President Obama established the first White House Task Force on Childhood Obesity in 2010 (White House Office of the Press Secretary, 2010). The task force reviewed research on topics such as healthy foods in schools and increasing physical activity. Their task was to report current data about childhood obesity in the United States, and offer strategies for combating the problem. According to the White House Task Force on Childhood Obesity,

> One in every three children (31.7%) ages 2-19 is overweight or obese. One third of all children born in the year 2000 are expected to develop diabetes during their lifetime. Childhood obesity also creates potential implications for military

> readiness. More than one quarter of all Americans ages 17-24 are unqualified for military service because they are too heavy. Excess weight is also costly during childhood, estimated at $3 billion per year in direct medical costs. (2010, p. 3)

To combat childhood obesity, members of the White House Task Force recommended an increase in opportunities for physical activity. Furthermore, members stated that physical education is a key component of a school-based comprehensive physical activity program, teaching children the purposes and skills for physical activity, and increasing fitness levels. A school-based comprehensive physical activity program includes physical education, classroom activity breaks, before- and after-school activity clubs, and recess (at the elementary level). Yet,

> Despite the evidence supporting physical education, due to budget pressures and other factors, fewer than one in six schools require at least three days a week of physical education for the entire school year for all grades in the school. (p. 70)

Members of the Task Force recommended that local and state education agencies increase physical education at all grade levels, and ensure certified physical education teachers teach these classes. In addition, they suggested that students should be engaged in moderate to vigorous physical activity at least 50% of the time in physical education.

Segal and Gadola (2008) reviewed research on childhood obesity to draw recommendations and intervention strategies for addressing the childhood obesity epidemic. Their findings indicate that cultural changes over the past three decades have influenced how people make decisions about food and physical activity: The portion sizes have grown, and more people are eating takeout foods than in the 1980s. Additionally, in

urban and rural areas, there is less access to grocery stores with fresh produce. Furthermore, "the electronic culture options for entertainment and free time, including TV, video games, and the Internet, have proliferated" (p. 197). Some of the strategies they suggest are to work with families to improve nutrition and physical activity opportunities at home. Research cited shows a relationship between parents' weight and that of their children. Working with the whole family rather than just the child can help by teaching everyone how to make healthy food choices as well as to incorporate physical activity into their daily routine. Other strategies presented by these authors are to reach students through schools by creating after-school programs, through improving physical education, and encouraging physical activity. However, they found that although states have policies in place for physical education programs, local school districts are not implementing them consistently. Furthermore, "many state agencies argue that physical education policies are often not enforced because there are already too many other mandated curriculum requirements" (p. 202). NCLB is cited as a catalyst for the limited resources and for taking instructional time away from programs such as physical education and extracurricular activities. Segal and Gadola conclude that there must be a comprehensive approach to solving childhood obesity. In addition, more research to identify best practices guidelines for programs is needed if the efforts are to be successful.

Social Class and Childhood Obesity

Fernandez and Strum (2011) suggest that, "an expansion of physical education and recess programs to meet national recommendations would mitigate body mass

increases" (p. 8). The purpose of their study was to explore the relationship between physical education facilities in United States elementary schools and students' health using data from the Early Childhood Longitudinal Survey (ECLS). Specifically, they were interested in how family, school, and community factors influence social and cognitive development of children. Data extrapolated from the ECLS for this study were on the availability and adequacy of the schools' outdoor play areas and gyms, how many times students had recess and physical education each week and for how long, student demographics, and students' body mass index (BMI). From their analysis, "the prevalence of obesity grew from 13.3% in 1st grade to 20.2% in 5th grade while average BMI percentiles increased from 60.8 in 1st grade to 65.7 in 5th grade" (p. 27). Students' family income was based on the percentage of free and reduced lunch served at the school, and if the school received Title 1 funding. Fernandez and Strum noted that "Children from disadvantaged backgrounds are more likely to attend schools with poorer gymnasium and playground provision. Furthermore, having a gymnasium is associated with more time on physical education" (p. 8). Analysis of these data showed that children in low-income areas, and in communities where it was reported as unsafe to play outdoors, are more likely to attend schools that do not have a gym. Also, high minority, low-income, urban schools were more likely to have inadequate gym and playgrounds (p. 25).

In Ogden et al.'s (2012) study using the results of the National Health and Nutrition Examination Survey (NHANES) survey to examine the prevalence of obesity by race in children and adolescence, they found, "there are significant racial and ethnic

disparities in obesity prevalence among U.S. children and adolescents" (p.488). Table 3 shows the estimates in obesity prevalence by race/ethnicity for boys and girls since NHANES III, which covered (1988-1994) (p. 1).

Table 3

Prevalence of Obesity by Percentage Among U.S. Adolescents Over Time Based on the National Health and Nutrition Examination Surveys

	NHANES 1988-1994	NHANES 1999-2000	NHANES 2001-2002	NHANES 2003-2004	NHANES 2005-2006	NHANES 2007-2008
Boys						
All	11.3	14.8	17.6	18.2	18.2	19.3
Non-Hispanic White	11.6	11.8	16.6	19.1	15.5	16.7
Non-Hispanic Black	10.7	21.1	16.7	18.4	18.4	19.8
Mexican American	14.1	27.2	21.8	18.3	25.6	26.8
Girls						
All	9.7	14.8	15.7	16.4	17.3	16.8
Non-Hispanic White	8.9	11.0	13.7	15.4	13.5	14.5
Non-Hispanic Black	16.3	25.2	22.0	25.4	29.8	29.2
Mexican American	13.4	19.3	20.3	14.1	25.4	17.4

Note. Obesity is defined as body mass index (BMI) greater than or equal to the sex- and age-specific 95th percentile from the 2000 Centers for Disease Control Growth Charts. Data is for U.S. adolescents aged 12-19, for selected years 1988-1994 through 2007-2008. From "Prevalence of Obesity and Trends in Body Mass Index Among US Children and Adolescents," by C. Ogden, M. Carroll, B. Kit, and K. Flegal, 2012, *Journal of the American Medical Association, 307*(5), p. 9.

In 2006, Kumanyika and Grier documented that certain ethnic minorities and low-income populations had alarmingly high rates of obesity, or higher than Whites and/or populations with higher socioeconomic status. Taking a meta-analysis approach, the researchers looked at the relationship between obesity, ethnicity, and economic disparities. They highlighted which obesity-promoting factors are most impactful and to which ethnic group, and looked for evidence to support potential interventions to the problem. Many of the studies they analyzed used the National Health and Nutrition

Examination Survey (NHANES) survey or the National Longitudinal Survey. Some of the key findings included that obesity rates among African Americans and Hispanic children and adolescents are higher than in Whites. Native American children's obesity rates are higher than African Americans. In addition, chronic diseases that ordinarily appear in adults are more prevalent in obese children, especially those of certain ethnicities. For example,

> Among adults, Type 2 diabetes is more common among African Americans and Hispanics than [W]hites. Although many of the data on Type 2 diabetes in children come from clinic records or case studies rather than from population samples, the data strongly suggest that the patterns of diabetes risk for children and adolescents parallel those of adults. (p. 191)

Also discussed in Kumanyika and Grier's meta-analysis are obesity-promoting factors that may be more prevalent in and among ethnic minority and low-income communities. For example, one report they examined found ethnic minorities between the ages of 8 and 18 used more entertainment media than their nonminority peers. In addition, low-income youth watched more television than the more affluent children. Entertainment media, especially commercials that advertise great deals for unhealthy food products, are found to influence children's opinions. In the same report, 63% of the mothers of Latino preschoolers reported that their child had asked to go to a certain restaurant or for a specific food or drink after watching television. Besides the enticements that commercials provide, the evidence that ethnic minorities and low-income youth are watching more media

also suggests that these children are more sedentary. In low-income and high minority communities Kumanyika and Grier found that

> for safety reasons, parents may restrict their children's outdoor activities by using a combination of TV and easy access to snack foods to get children to go straight home from school. Parents' work schedules, and car ownership may make it hard for parents to caregivers to transport children to sports and other recreational activities. (p. 195)

In conclusion, Kumanyika and Grier suggest that pinpointing environmental factors that promote activity are key for intervention. They do not believe that counseling low-income and/or ethnic minorities on what to eat and how to be physically active is helpful if the physical environment in which they live does not allow for physical activity and if there is no access to healthy foods.

Bragg, Tucker, Kaye, and Frederic (2009) investigated the motivating factors and factors for participation in physical activity among low-income, culturally diverse youth and adults. Their sample for this study was children 11-15 year old, and adults 18 or older. Racial groups included African Americans, Hispanics, and Caucasians. Once identified, the participants were placed into focus groups, and asked about specific motivators and factors in their lives that either deterred or promoted their interest in engaging in physical activities. Focus group discussions were recorded, transcribed, and coded for themes. The themes were sorted into two categories: motivators for, and factors against, participation in physical activity. In both the adolescent and adult focus groups, participants concluded time, priorities, current fitness level, and physical environment

were factors to their participation. Table 4 summarizes the findings from the study: Physical environment, availability/unavailability of resources (e.g. owning a bicycle, lack of neighborhood recreational facilitates), availability of peers in close proximity, location (i.e., the location where one lives), and safety issues (e.g. a dangerous neighborhood) were identified as influential motivators or barriers to physical activity (p. 150). These findings are significant because with obstacles such as physical safety as a concern, students in low-income areas have much to overcome to play and be active in their own communities.

Table 4

Motivating Factors and/or Barriers to Physical Activity

Table 1. Most Common Categories of Identified Motivators and/or Barriers and the Specific Identifications for Each Age Group x Gender x Race/Ethnicity

Motivator/ Barrier	Adult						Adolescent					
	Female			Male			Female			Male		
	AA	H	W	AA	H	W	AA	H	W	AA	H	W
Social Influence	M	M	M	M	M	M	MB	MB	M		M	MB
Physical Environment	MB	MB	MB		MB		B	B	MB		MB	M
Fun and Enjoyment		M	M		M	M			M		M	M
Inherently Physical Activities	M	M	M		M	M	M	M			M	M
Weight Concerns		M	M	M	M	M					M	M
Time	B	B	B	B	B	B	B				B	B
Priorities	B	B	B	B	B		B		B		B	
Fatigue	B	B	B		B							
Physical Discomfort	B		B	B	B	B		B		B		B
Current Fitness Level	B		B	B					B	B		B
Immediate Positive Feelings	M	M	M			M		M			M	M

Notes: M = Motivator; B = Barrier; AA = African American; H = Hispanic; W = non-Hispanic White

Note. From "Motivators of and Barriers to Engaging in Physical Activity: Perspectives of Low-Income Culturally Diverse Adolescents and Adults," by M. Bragg, C. Tucker, L. Kaye, and D. Frederic, 2009, *American Journal of Health Education, 40*(3), p. 146.

A major limitation of Bragg et al.'s (2009) study is that there is no way to determine why the focus group members mentioned certain barriers and not others in their discussions. A recommendation that may enhance validity of responses would have been to give the participants a list of potential barriers, including a space for "other," and have them individually rank them in order from least to greatest barrier. From their literature review, Bragg et al. found that "Obesity among all populations continues to increase. Moreover, obesity disproportionally affects racial/ethnic minority populations, with African-Americans and Hispanics evidencing higher rates of obesity than non-Hispanic Whites" (2009, p. 146).

Physical Education and Students' Physical Activity Levels

There is sufficient evidence to support the claim physical education provides time for the physical activity students need. The 2012 *Physical Activity Guidelines for Americans Midcourse Report* (Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the President's Council on Fitness, Sports and Nutrition, 2012) provides information about the need for physical education in schools as it pertains to improving opportunities for physical activity among youth. This document is a follow-up to a report published the U.S. Department of Health and Human Services in 2008. Representatives from several federal agencies were invited to work on the 2012 report, and formed a steering committee, including the Office of Disease Prevention and Health Promotion (ODPHP); the President's Council on Fitness, Sports, and Nutrition (PCFSN); the Centers for Disease Control and Prevention (CDC); and the National Institute of Health and Human Services (NIH). The steering committee determined the research

needs for the follow-up report and commissioned a team of researchers from several universities to conduct a meta-analysis of research on physical activity and youth. The resulting subcommittee of researchers reviewed literature in order to identify strategies to increase physical activity among children. Their analysis focused on five places that children participate in physical activity: schools, preschools, childcare centers, community, family/home, and primary care facilities. The researchers used a 7-step process to identify 31 reviews containing 210 studies that were included in the 2012 *Midcourse Report*. From this work, the steering committee concluded that, "school settings hold a realistic, and evidenced-based opportunity to increase physical activity among youth and should be a key part of a national strategy to increase physical activity" (Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the President's Council on Fitness, Sports and Nutrition, 2012, p. vii). The committee determined that because 95% of youth are enrolled in schools, and there are six to seven hours per school day, in-school physical activity is an ideal way to ensure children have the opportunity to participate in physical activity. In addition, they recommended a school-wide, multicomponent approach. Strategies for making a school-wide approach work included increasing the amount of time students spend in physical education class, ensuring that trained teachers deliver instruction, and providing a curriculum that provides adequate amounts of moderate-to-vigorous physical activity. In addition to a quality physical education program, schools should infuse classroom physical activity breaks and offer before-/after-school activities.

Several research needs surfaced as a result of this meta-analysis process. One area of need is a study of specific populations to determine strategies for increasing physical activity among different racial, ethnic, and socioeconomic status groups. In addition,

> most policy-relevant research related to youth physical activity is cross-sectional, showing associations but not permitting causal connections between the policies and programs to be drawn. In the future, longitudinal assessments and rigorous evaluation of policies and programs related to youth physical activity are high priorities. (Physical Activity Guidelines for Americans Midcourse Report Subcommittee of the President's Council on Fitness, Sports and Nutrition, 2012, p. viii)

Over the last 10 years, legislation written to increase and enhance physical education programming in schools has come to the forefront in Virginia, but there are challenges that have kept the legislation from passing. One of the problems is the lack of experimental research that supports claims that physical education can result in healthier students and/or healthier adults. "To date, most long-term data add little to the understanding of long-term effects (of physical education on health and physical fitness) because researchers have rarely used experimental design" (Shepard, & Trudeau, 2005, p. 251). In a quasi-experimental study on physical education students in Quebec, Shepard and Trudeau found there were gains in cardiorespiratory performance, muscle strength, and performance skills over a six-year period for those students who received physical education for five hours per week. The participants in the study were 546 primary school students attending both rural and urban schools in the Provence of Quebec. Half of the

students were assigned to a control group and the other to an experimental group. The experimental group received additional physical education instruction. In the first two years, the experimental group learned motor skills. In years three and four the students focused on cardiorespiratory endurance and muscular endurance training and in years five and six practiced skills in various sports. The experimental group improved their cardiorespiratory endurance during the six-year period as assessed by the Canadian Association for Health, Physical Education, and Recreation (CAHPER) battery of performance tests. "The experimental students showed a statistically significant advantage of peak oxygen intake as measured on the treadmill in Grades 2 through 5; the benefit peaked at the age of 10 years (11.1% in boys, 11.3% in girls)" (Shepard, & Trudeau, 2005, p. 118). Unique features of this study are that the original investigation took place from 1970-1977, and the participants were reassessed when they were between the ages of 30-35, in 1997-1999. The researchers found of those members of the experimental group who could be reached, 59% had a greater propensity to physical activity compared to 50% of the control group. In addition, the experimental group was more likely to partake in physical activity three or more times per week ($\chi^2 = 9.4$, $p <$ .01). Furthermore, the men in the experimental group had a lower resting heart rate (71 vs. 77 beats/minute) than their male counterparts in the control group. One of the limitations to this study was that not all of the original participants could be reached. Furthermore, the researchers did not have access to the group's participation in sports during adolescence to see if that may have been the catalyst for their continued desire to be physically active.

In comparison to the five hours per week the experimental group received in the Quebec study, across the United States the "percentage of schools with physical education classes of 30 minutes or less ranged from forty-three percent for first grade to thirty-four percent for fifth and sixth grades" (Parsad & Lewis, 2006, p. 17). Table 5 was excerpted from Parsad and Lewis's study and shows the average number of times students have physical education class in elementary school across the United States is 2.4-2.6 days per week.

Table 5

Mean Number of Days Per Week of Scheduled Physical Education in Public Elementary Schools

Table 17. Mean number of days per week of scheduled physical education at public elementary schools, by elementary grade level and selected school characteristics: 2005

School characteristic	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6
All public elementary schools	2.4	2.4	2.4	2.4	2.4	2.6
Enrollment size						
Less than 300	2.7	2.7	2.7	2.8	2.8	3.1
300 to 499	2.1	2.1	2.1	2.1	2.1	2.1
500 or more	2.5	2.5	2.4	2.4	2.4	2.5
School locale						
City	2.3	2.3	2.3	2.3	2.3	2.2
Urban fringe	2.3	2.3	2.3	2.3	2.3	2.4
Town	2.6	2.6	2.5	2.5	2.4	1.8
Rural	2.6	2.6	2.6	2.6	2.7	3.2
Region						
Northeast	1.8	1.8	1.7	1.7	1.8	1.9
Southeast	2.4	2.4	2.4	2.4	2.4	2.9
Central	2.3	2.3	2.3	2.3	2.2	2.3
West	2.9	2.8	2.9	2.9	2.9	3.1
Percent minority enrollment						
Less than 6 percent	2.2	2.2	2.2	2.2	2.3	2.4
6 to 20 percent	2.5	2.5	2.5	2.5	2.6	3.0
21 to 49 percent	2.4	2.4	2.4	2.4	2.4	2.7
50 percent or more	2.5	2.5	2.5	2.4	2.5	2.5
Percent of students eligible for free or reduced-price lunch						
Less than 35 percent	2.3	2.3	2.2	2.3	2.3	2.5
35 to 49 percent	2.5	2.5	2.4	2.4	2.5	2.7
50 to 74 percent	2.6	2.6	2.6	2.6	2.6	3.1
75 percent or more	2.4	2.4	2.4	2.4	2.5	2.4

NOTE: Respondents were asked to provide information for each grade that was considered elementary at the school, typically grades 1 through 5 or 6.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System (FRSS), "Foods and Physical Activity in Public Elementary Schools: 2005," FRSS 87, 2005.

Note. From *Calories In, Calories Out: Food and Exercise in Public Elementary Schools*, by B. Parsad and L. Lewis, p. 80. Copyright 2005 by U.S. Department of Education, National Center for Education Statistics.

Student Achievement and Physical Fitness

The link between academic achievement and physical fitness is an area of research that is growing. The topic is relevant to this study because physical education class provides time for students to move and be physically active during the school day, with a potential to improve physical fitness levels as well as to stimulate brain function.

Sufficient evidence exists that supports the brain and body connection: Studies have shown that student achievement is higher among physically fit students than their less fit peers.

One study of elementary and middle school students in Mississippi and the relationship between physical fitness levels and standardized test scores in language arts "indicated that students who were more fit were less likely to miss school and do poorly on standardized tests" (Blom, Alvarez, Zhang, & Kolco, 2011, p. 17). Approximately three thousand Mississippi public school students in grades 3-8 participated in this study. The researchers used the *Fitnessgram* test data to objectively assess physical fitness. The *Fitnessgram* test battery includes tests for six components of health-related fitness including PACER (Progressive Aerobic Cardiovascular Endurance Run), curl-up, push-up, trunk lift, sit and reach, and Body Mass Index (BMI). Each test has a criterion-referenced health fitness zone according to the student's age and gender. The overall fitness level of the student participants was shown by the number of health-related fitness zones achieved on each of the tests in the series. The results of the fitness tests were merged with other data, including the students' standardized test scores for math and language arts. After a statistical analysis of the data, the researchers determined that

> when gender, race/ethnicity, and SES were controlled, significant positive relationships still existed between fitness levels (i.e. number of healthy fitness zones achieved) and standardized test scores in both language arts and math. For language arts, the likelihood of high academic achievement increased with each additional fitness zone achieved (up to three times); for math, a similar trend was

> found. For example, students with the highest number of healthy fitness zones achieved were approximately three to four times more likely to have high levels of academic achievement (high test scores) compared to those with zero healthy fitness zone achieved. (Blom et al., 2011, p. 32)

In another study on academic achievement and fitness level, Wittberg, Northrup, and Cottel (2012) explored which aspects of students' fitness were linked to performance in four different subject areas. The fitness areas were cardiorespiratory endurance, trunk extensor flexibility and strength, flexibility, upper body strength/endurance, and abdominal strength as measured by the *Fitnessgram*. The four subjects used in the study were math, language arts, science, and social studies. The students' performance in each subject area was measured by the results of the WESTEST, a standardized test administered throughout the state of West Virginia. Participants in the study were 968 fifth graders (approximately 50% male and 50% female).

> One-way analysis of variance (ANOVA) was used to compare means for children who were in the Healthy Fitness zone for each individual fitness test with those in the Needs Improvement zone (NIZ). An ANOVA model was used to examine the effects of the fitness tests on students' academic proficiency after controlling for meal program, (SES proxy), BMI and gender. (Wittberg et al., 2012, p. 32)

Findings from the data showed, "achievement test scores were significantly better for children who were in the health fitness zone (HFZ) for abdominal strength and aerobic fitness tests when compared to children who were unable to achieve the healthy zone" (p. 30). Students with cardiorespiratory endurance scores in the HFZ had the greatest impact

on student achievement in each of the four subject areas assessed. One of the limitations to this study is the *Fitnessgram* test was administered by different physical education teachers, so there may have been differences in the way the test was conducted. Furthermore, students only had one opportunity to take the *Fitnessgram* test series, and one opportunity to take the WESTEST. The researchers point out that most studies on this topic were performed on adults, and suggest further research is needed on students.

In a longitudinal study that included 29 elementary schools in a suburban community in Australia, Telford, Cunningham, and Abharatna (2012) "found strong evidence of positive relationships at the school level between the literacy and numeracy scores and cardio-respiratory fitness" (p. 52). The participants in the study were 757 students in grades 3 and 5. To measure cardiorespiratory fitness, students were asked to run a 20-meter distance. To measure physical activity, students wore pedometers for seven days. A literacy and numeracy test was administered to the students in grade 3 (2005) and again when the students were in grade 5 (2008). The researchers determined that students who attended the same school might have similar academic results due to variables, such as the teacher's instructional delivery of the curriculum. The between-school results showed reading scores and numeracy scores were significantly and positively associated with cardiorespiratory fitness. The evidence gathered from the results show a positive relationship between students' fitness level and their academic performance. However, the schools doing better at physically developing students might coincidentally be better at developing them cognitively.

A study by Donnelly et al. (2009) examined relationships between academic achievement and being overweight/obese in elementary schools in Kansas. A three-year program, *Physical Activity Across the Curriculum* (PAAC), was introduced in 26 elementary schools. The program required that 10-minute physical activity breaks had to be woven into the school day for a total of 90 minutes per week. In addition to the 90, the students had 60 minutes of physical education. After three years

> Body Mass Index from baseline to 3 years was significantly influenced by exposure to Physical Activity Across the Curriculum. Schools with ≥75 min of Physical Activity Across the Curriculum/week showed significantly less increase in Body Mass Index at 3 years compared to schools that had 75 min of Physical Activity Across the Curriculum (1.8±1.8 vs. 2.4±2.0, p=0.02). Physical Activity Across the Curriculum schools had significantly greater changes in daily Physical activity and academic achievement scores. (p. 336)

Figure 3 illustrates the significant finding that the control group did not perform as well as the experimental PAAC group in reading, math or spelling after the 3-year period.

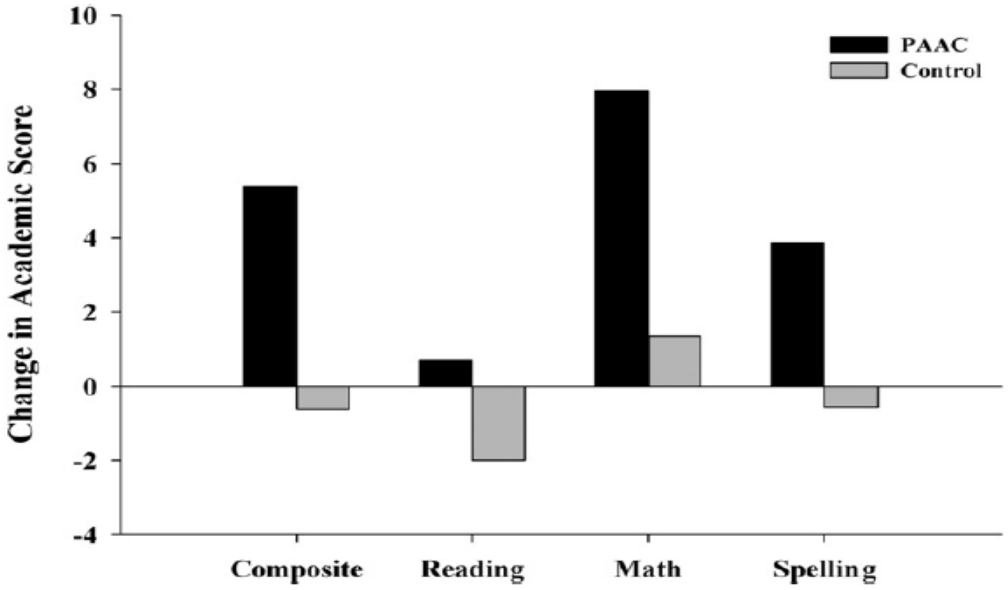

Figure 3. Graph of the changes in academic scores with exposure to Physical Activity Across the Curriculum (PAAC). Baseline to 3 years in elementary schools in northeast Kansas (2003–2006). Adapted from "Physical Activity Across the Curriculum (PAAC): A Randomized Controlled Trial to Promote Physical Activity and Diminish Overweight and Obesity in Elementary School Children," by J. Donnelly, J. L. Greene, C. A. Gibson, B. K. Smith, R. A. Washburn, D. K. Sullivan, K. DuBose, M. S. Mayo, K. H. Schmelzle, J. J. Ryan, D. J. Jacobsen, and S. L. Williams, 2009, *Preventive Medicine, 49*(4), p. 336.

Wingfield, McNamara, Janicke, and Graziano (2011) studied the relationships between academic achievement, body mass index (BMI), and fitness level among elementary school students. The participants were 132 students in grades 4 and 5 from a school in North Central Florida. The results of a physical fitness test battery were compared to math and reading scores on the Florida Comprehensive Assessment Test (FCAT). The fitness assessments included tests to measure students' cardiovascular fitness, flexibility, strength, and body composition. A factor analysis determined if the six test components merged into a single fitness factor. An initial analysis was conducted to see there were a statistically significant association between demographic variables, such

as sex, race, age, and socioeconomic status (SES). Both regression and correlation analyses were executed to explore if there was a relationship between BMI and fitness with academic success. Findings indicate a correlation between academic achievement and BMI among fifth grade female students: "[Fifth] grade girls with higher BMI levels had worse academic performance. Girls may be more impacted academically by weight than boys" (Wingfield et al., 2011, p. 8). Limitations to this study were that only one school was used, which may mean a more homogenous population, and there was a limited age group used as the sample size.

National Recommendations for Elementary Physical Education

The National Association for Sport and Physical Education (NASPE) and the American Heart Association (2012) recommend 150 minutes of physical education per week for elementary-age students. This recommendation is included in the *Shape of the Nation Report: Status of Physical Education in the USA* that also presents five premises for the purpose of elementary physical education. First, "the ultimate purpose of any physical education program is to help children develop the skills, knowledge, and desire to enjoy a lifetime of physical activity" (p. 4). It is the position of NASPE that a physically educated person has the essential knowledge and the physical skills to enjoy physical activity and the confidence in their ability to participate in many forms physical activity throughout their lives. The second premise is that, "children should engage in physical activity that is appropriate for their developmental level" (p. 4). Representatives from NASPE explain that young children are not physiologically or mentally developed enough to participate in adult versions of sports. Physical education is the class that

teaches foundational movement patterns and skills as well as the strategies and concepts to prepare children for adult physical pursuits. The third premise is that, "recess and physical education are important but different parts of the school program" (p. 4). Representatives from NASPE go on state that recess is an unstructured time for students to play and take a break from their studies, whereas physical education is part of the whole curriculum program. Physical education provides information about physical skills and health-related fitness as well as the time to actively apply that knowledge in a structured setting taught by certified teachers and experts in the field. The fourth premise is that, "physical activity and physical education are not the same" (p. 4). Similar to the rationale for the third premise, NASPE representatives state that physical education teachers hold professional credentials making them experts in the content. Whereas physical activity is part of the physical education program, the main goal is for students to gain the knowledge and skills to be competent movers. The last premise is that, "physical education and youth sports programs are different" (p.5). According to NASPE representatives, the purpose of youth sports is to offer students a competitive environment to specialize in one or more sports. Physical education is not meant to be a class where students are competing against one another. Instead, physical education is designed to provide a safe and supportive learning environment to all children regardless of their ability levels. The physical education curriculum is expansive, offering a wide range of activities, whereas participating in youth sports is specific to the sport the child chooses to join.

Physical Education in Schools Since NCLB

The No Child Left Behind Act includes provisions that place high stakes on student achievement in subjects such as math and reading. For this reason, states and local school divisions do not place physical education at the top of the school's priority lists when making curriculum and instruction decisions. Therefore, special subjects such as physical education, art, and music are being reduced and/or lack the resources to implement the curricula effectively. Furthermore, policies guiding instruction in these subjects are often loose, vague, and interpretable.

In a study on the process and outcomes of implementing state-level childhood obesity policies in Mississippi and Tennessee public schools, researchers found a negative effect on curriculum implementation due to the focus on standardized testing: "Administrators, teachers, and students across the eight schools that we studied repeatedly informed us that standardized test performances have become the overarching concern of classroom-based teachers and school administrators to the detriment of other subject areas, including physical education" (Amis, Wright, Dyson, Vardaman, & Ferry, 2012, p. 1408). One public school principal interviewed for the study went so far as to say that elective classes, such as physical education class, were being phased out in order to budget for hiring more teachers in test subject areas with the goal of reducing class size. Because principals seek to reduce class size in the core test subject areas, class size in physical education continues to grow.

Physical Education Teachers' Perceptions of Curriculum and Policy

The framework for this study was based in sense-making, so the literature in this section highlights motivating factors as well as the obstacles and challenges physical education teachers face as they make sense of their jobs and the policies that guide them. For example, in a study to examine the impact of a grant awarded through the federal Carol M. White Physical Education Program (PEP) on physical education programs in one school district, Brubaker (2011) studied the qualities of an effective physical education program, the perceptions of physical education in today's schools by physical education teachers, and their motivation to improve their teaching. The sample was middle and high school physical education teachers in a semirural school district. The researcher used interviews, observations, and focus groups to draw conclusions about the impact PEP had on the quality of the physical education programs, the teachers' motivation to improve, and what the teachers thought parents felt about physical education. Consistent across all of the interviews was that an effective physical education curriculum "should be diverse and provide a variety of physical activities for students" (p. 41). In addition, teachers interviewed stated that improving student's physical fitness levels and their participation in physical activity was a major motivation for them to want to improve instruction. Finally, Brubaker found that the physical education teachers in the study thought that members of the community perceived physical education to be the same as when they went to school, but some thought that the PEP grant had changed their perspectives for the better: "Peoples' perceptions of the physical education program have changed due to the PEP grant and the facilities and new equipment it has provided" (p.

50). Limitations to the study were that there were only five interviews, no elementary physical education teachers participated, and the study was conducted in only one school district. In summary,

> the participants indicated that the PEP Grant allowed them to make changes in their physical education program. As a result of the new equipment and fitness facilities, the physical education teachers in this study have placed more focus on the importance of students improving their overall physical fitness. (p. 57)

The teachers' perceptions about their ability to deliver instruction changed after the district received the PEP grant. Regardless of the policies in place in this school district, teachers were able to do more because they had additional resources.

In a mixed methods study, Neese (2012) surveyed and interviewed elementary school teachers, principals, and a superintendent in nine schools located southwest of Los Angeles, California. The purpose of the study was to examine factors contributing to the implementation of standards-based elementary physical education curriculum. In this particular school district classroom teachers taught the elementary physical education curriculum. The nine schools were chosen based on the percentage of students receiving free and reduced lunch, student demographics, and the percentage of students in the Healthy Fitness Zone (HFZ) for BMI as measured by the *Fitnessgram* test series. The research questions centered on four factors including physical education content knowledge, planning, resources, and support for implementing a standards-based physical education curriculum. The questions were broken into three groups including those especially for teachers, questions especially for principals, and one question for the

superintendent. The survey questions used in this study were developed from the same factors used to design the research questions: content knowledge, planning, resources, and support. One hundred a eighty classroom teachers from the nine schools were emailed an invitation to take a 37-item survey. Of those teachers that took the survey, 97 of them were willing to be interviewed as well. The interviews included five open-ended questions.

One of Neese's major findings was that teachers "followed a standards-based physical education curriculum to teach physical education content. Due to curriculum guides, the teachers suggested they are more inclined to ensure students have physical education during the week" (2012, p. 152). Another finding indicated that teachers felt their principals followed state rules for physical education time allotment: "This proved crucial in successful implementation of a standards-based physical education program" (p. 154). Furthermore, Neese found that some of the schools were piloting a new math curriculum in hopes of raising test scores because students were not performing well on district-wide math tests, and teachers in the schools with the new math curriculum explained that it was taking time away from teaching physical education.

As discussed earlier in this chapter, pressures for students to achieve in math and reading due to the 2002 NCLB law have created a school environment where it is possible to push other subject areas aside if there is a need to improve test scores in core academic subjects such as math and reading. With the rate of childhood obesity so high in the United States and the pressure on schools to show student achievement in core

subjects, it is even more important to understand the perceptions of teachers who are tasked with implementing physical education curriculum.

In a quantitative, cross-sectional study, Antoine (2012) examined the relationship between teachers' demographics and their perceptions of barriers in physical education and physical activity. The study was administered through an online university's website, so students of the university across the world had access to the online survey. Only staff and students who worked in K-12 education were included in the analysis of the results. Antoine used a Likert scale design for the items in the survey in which participants were asked to rate eight perceived barriers to physical education and physical activity on a scale from 1-5. A rating of 1 meant the participant strongly agreed that the barrier hindered their ability to provide physical education and physical activity in their respective schools, up to 5, which meant that the participant strongly disagreed. The eight barriers were inadequate indoor and/or outdoor facilities, insufficient number of physical education specialists, low level of principal support, low priority relative to other academic subjects, inadequate financial resources, large class size, insufficient time in the school day, and insufficient equipment and materials (Antoine, 2012, p. 60). In addition to these barriers, Antoine asked about "insufficient school policy as it pertains to adequate physical education and physical activity programs as a school barrier" (p. 17). From analysis of the data, racial background was a factor in the number of barriers a teacher perceived. In addition, the location of the school in which the teacher worked had an impact on the number of barriers, as teachers working in urban and rural schools perceived more barriers than those who worked in suburban schools. Antoine also found

"that there is a need for school district leaders to provide school policies that cater to quality physical education and physical activity program implementation in low-income urban schools" (p. 84). The significance of the survey is that, "it could also help schools with initiating professional development that addresses the importance of which cultural and social characteristics most affect educators' views of barriers to physical education and physical activity" (p. 17). Furthermore, the findings may be used to inform school policy makers of the needs for better policies targeting physical education/activity in low-income school districts.

Congruence of Practice and Policy in Physical Education

A dissertation by Asola (2008) documented what occurs in elementary physical education in Alabama, and illustrated discrepancies between national and state policy and practice. The sample for this study included 137 elementary physical education teachers representing 68 county and 63 city school systems in Alabama at the 2008 Alabama Association of Physical Education Recreation and Dance (ASAPHERD) conference. The Physical Education in Alabama Survey (PEAS) was given to the teachers, which included both forced-choice and open-ended questions on demographic and programmatic information. Frequency counts were taken and percentages calculated for the forced-choice questions. Analytic Induction was used to code and categorize raw data from the open-ended questions. The data were sorted into two broad categories: demographics of the teachers and those dealing with the physical education programs. The data were compared to the key components of the policies for physical education outlined by NASPE and the State of Alabama Department of Education. Asola found that 28.4% of

the elementary schools met standards for physical education outlined by NASPE and the State of Alabama Department of Education. The mean number of years of teaching experience was 12 years. Seventy-eight percent of the teachers surveyed were certified to teach physical education. Physical education program data taken from the survey results showed that class size was in the mid-sixties. The discrepancy between the written policy and teachers' practice in the schools was evidenced by the fact that the Alabama Department of Education recommends physical education class should be the same size as other classes in the school. Thirty-nine percent of survey respondents stated there was not a written physical education curriculum for their school. Also in contradiction to state and national policy, 75% of teachers stated they included a free play or free choice day in their physical education curriculum. Free choice day is where regular scope and sequence is stopped and students are given a choice of how they want to spend their time in physical education class. In summary, Asola found,

> data indicated that elementary physical education programs were congruent with national and state policy in some areas and incompatible in others. The results of the study suggested that many schools were contradicting national and state physical education policy in terms of class size, and grading practices. Significant proportions of teachers in the study appeared to be contravening official policy by not being certified to teach the subject, providing one non-instructional lesson per week, and failing to provide daily physical education or carry out formal evaluation. (p. 26)

Asola recommended there should be an official class size policy, that teachers must be certified to teach the subject, and that more rigorous guidelines for the content and a model for the curriculum be adopted.

Chapter Summary

The studies included in this chapter provide examples of research on teacher perception of policies and curriculum implementation in physical education. Furthermore, they show the need to explore how elementary physical education teachers are implementing curriculum since the primary focus in schools became achievement in academic subjects such as reading and math. For instance, findings from Amis et al.'s 2012 study provided information about the process and outcomes of implementing state-level childhood obesity policies when the focus is on standardized testing in core subjects such as math and science. The study's school leaders and teachers consistently stated that the focus on achievement on standardized tests in academic subjects have become the priority—to the detriment of other subjects, including physical education.

Although Amis et al.'s focus was on achievement on tests in core subjects, some of the research examples in this chapter support the notion that physical fitness levels are related to academic performance in that students with higher levels of fitness perform better in physical activity settings. For example, Wittberg et al. (2012) provided evidence that students performing in a healthy fitness zone according to a criterion fitness assessment given during physical education class achieved higher scores on academic tests given in the classroom than their less fit peers. The research examples in this chapter also provide evidence that funding and resources can positively impact teachers'

perspectives of their physical education program as well as how they feel their students and the parents perceive physical education. The study conducted by Antoine (2012) provided evidence that existing barriers and challenges cause physical education teachers to adapt their practices and can be demotivating factors to their desire to perform their jobs. Although there are similar studies that look at the impact of policies on practice, none were found that looked specifically at the teachers' perceptions of policy and what factors may impact curriculum implementation is the basis for conducting this research study.

3. RESEARCH DESIGN

The purpose of the study was to explore elementary physical education teachers' in the Bergling School Division (a pseudonym) in the Commonwealth of Virginia implementation of the physical education curriculum, and their knowledge of the state and local school division policies pertaining to physical education. In addition, the study examined elementary physical education teachers' perceptions of potential factors to implementing the curriculum in their respective schools. The following research questions guided this study.

- To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum?
- To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum?
- To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?

- As a result, how are elementary physical education teachers implementing curriculum in their schools?
- To what extent do specified teacher demographics account for differences in elementary teachers' use of the physical education the curriculum?
- To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?

As detailed in Chapter 1, the theory of sense-making informs the conceptual framework for this study because the focus was on gathering teacher perceptions of how they implement elementary physical education curriculum within the guidelines of state and local policies and regulations. The data gathered from this study provides information on how teachers make sense out of what they teach given the policies to implement the physical education curriculum. Moreover, the findings provide information about how curriculum is implemented in different school settings and by teachers with different backgrounds and experiences.

To explore how teachers make sense of their situations, bridge gaps over factors, and implement the elementary physical education curriculum, a 32-item survey was used to collect data from participants. The survey, *Elementary Physical Education Teacher Survey*, is included in Appendix A. Survey research was used in this study because of the need to gather the perceptions of all elementary physical education teachers in the Bergling School Division. Each school is unique in programming, demographics, and resources. Furthermore, each physical education teacher is unique, with different experiences, education, and teaching background. A survey is the most efficient, practical

method for collecting a large amount of data from a large population of participants. According to Dillman, Smyth, and Christian (2009), the goal of survey research is to, "design scientifically sound data collection systems that allow us to obtain precise estimates of the behaviors and attitudes of all people in a population" (p. 11).

Although interviewing participants may have provided richer explanations of teachers' perceptions of policy and practice, it was not practical because there were over 200 physical education teachers in the division. However, the survey included open-ended items to give teachers the opportunity to provide more information and/or to individualize their responses. Forced-choice items were included in the survey as well.

Participants and Setting

The participants were from the population of elementary physical education teachers in the Bergling School Division (a pseudonym) in Virginia. There are close to 150 elementary schools in the school division, and over 200 elementary school physical education teachers. Most of the elementary schools have two full-time physical education teachers, working in tandem, and sharing equipment and gym space. Some schools have one full-time physical education teacher, and a small number of schools have one full-time and a part-time physical education teacher. Physical education teachers in the Commonwealth of Virginia a must have an undergraduate degree from an approved program in health and physical education. The other option to be qualified to teach physical education is to pass the Praxis II, the Virginia Communications and Literacy Assessment (VCLA), and the Reading for Virginia Educators (RVE). However, this option is only available to "individuals who hold a valid out-of-state license and who

have completed a minimum of three years of full-time, successful teaching experience in a public or accredited nonpublic school in a state other than Virginia" (Virginia Department of Education, *Assessment Requirements for Virginia Licensure*, 2013).

The Bergling School Division is a suburban school division in the Commonwealth of Virginia. The school division is large, spanning 395 square miles. There were 181,536 students enrolled in the school division in the 2012-2013 school year. Of the students enrolled, 19.3% were Asian, 10.4% were African American, 43.1% were White, 22.1% were Hispanic, and 4.6% mixed race students attending the elementary schools. The class size at the elementary school level ranges from approximately 16 to 28. During the 2012-2013 school year, 47,188 students received free and reduced meals, 47,188 students spoke English as a second language, and 25,030 students received some form of special education services.

The main barrier to participant selection was that no names were associated with the survey responses. Therefore, there was no way to know who responded and who did not respond. In addition, the researcher could not follow up with the participants after analyzing the survey data because the identities were protected.

Survey Instrument

For the purposes of this study, two past studies that used survey instruments were consulted and modified to design the 32-item survey found in Appendix A. Part one of the survey includes a modified version of a survey found in Antoine's (2012) study, which examined factors influencing the implementation of elementary school physical education. Items taken from Antoine's survey included potential factors for implementing

the elementary physical education curriculum in the teacher's respective school. Additional factors were added, and several were modified for the survey used in this study. The 15 potential factors were large class size, lack of support from administration, insufficient space, insufficient equipment, additional duties, lack of financial support, low level of priority because of other academic subjects, not enough time with students, teaching philosophy differs from colleagues, additional duties, inability to assess students properly, curriculum does not meet the needs of the students, lack of support from parents, student's lack of interest for physical education, and ineffective school policies. For the first 15 items, teachers were asked to rate their level of agreement with each of the potential factors using a 4-point Likert Scale. A 4-point scale was used so that the teacher had to decide one way or another and could not be neutral. The rationale was that a factor either exists or does not exist; there is no way a factor can be viewed as "neutral." The visual layout for this part of the survey could have been matrices because the teacher was asked to rate his or her level of agreement on the same 4-point Likert scale for each of the 15 potential factors. However, "matrices represent the most difficult question formats to answer. They require people to match information in rows with questions in columns, a task that is quite complex" (Dillman et al., 2009, p. 179). Because the participants were teachers, and may have taken the survey during the school day, with limited time to review the content, it was more effective to break out the 15 factors into separate items, and use the same 4-point scale for each.

Part two of the survey was adapted from Asola's (2008) Physical Education in Alabama Survey (PEAS) survey. The purpose of Asola's study was to detail what occurs

in physical education in the state of Alabama and to explore discrepancies between policy (state and local) and teaching practices. In addition to Asola's modified survey items, the survey included 13 items pertaining to potential factors for implementing the elementary physical education curriculum in the Bergling School Division. Part two of the survey included items pertaining to teacher demographics, the school setting, and implementation of the school division policy for physical education. Demographic information gathered from items in part two of the survey includes years of teaching elementary physical education, prior teaching experience, education, and additional roles/duties they serve in the school they teach. Additional items in part two of the survey included those about the size and make-up of the school population, planning and teaching time, and questions about the school division's policy for elementary physical education.

Most of the items in part two of the survey were multiple choice/close-ended, which made data analysis more efficient for things such as the number of minutes students had physical education per week. Furthermore, according to Fink (2009), "the overwhelming majority of surveys rely on multiple-choice (close-ended) questions because they have proven themselves to be the more efficient and ultimately more reliable" (p. 15). In addition, multiple choice/close-ended items guaranteed continuity in the format of the responses, which allowed the researcher to look across the data to make comparisons. However, it was more difficult to gain teachers' perceptions about the policies and practices associated with physical education or what resources the teacher used to plan for instruction beyond the program of studies. The open-ended questions in

part two of the survey were designed so that the teachers could, "provide in-depth information on the topic of the question" (Dillman et al., 2009, p. 108). In addition, there were a few fill-in-the-blank items, such as "Please identify the length of one class period (in minutes) for each of the grade levels," as there may be differences in the length of a kindergarten physical education class and a sixth grade physical education class. Responses to fill-in-the-blank items showed how much time physical education teachers had to implement the curriculum.

Validity

Because the survey instrument used in this study was adapted from two past studies, the researchers from those studies had already ensured content validity. Fink noted, "A survey can be validated by proving that its items or questions accurately represent the characteristics or attitudes they are intended to measure" (p. 43). Content validity can be established "by asking experts whether the items are representative samples of the attitudes and traits you want to survey" (p. 43). Therefore, to further establish content validity, a pilot test of the survey was administered to a group of former physical education teachers working as curriculum specialists in the Bergling School Division's Health and Physical Education Department. Also, a former elementary physical education that works for the National Association for Sport and Physical Education (NASPE) was part of the group. The representative from NASPE was included to provide feedback because the other reviewers worked for the Bergling School Division, provided professional development to physical educators, and wrote the physical education curriculum.

Reliability

To ensure survey items were reliable, the experts who took the survey also received a document with questions designed to gather feedback about the items. This document, "Elementary Physical Education Survey Feedback Form," is included in Appendix B. The feedback form included a chart where the pilot test participant had to detail which items on the survey fit with which research question. The intent was to see if the pilot test responders placed the items with the correct research questions. Also, the test participants were asked to comment on the content of the items, and explain rationale for any that they did not understand, or did not think fit with the research. The intent was to inform the researcher of any question(s) that may not be clear to the respondents.

In addition to the feedback form, the researcher reviewed each of the pilot test survey items to see if the respondents answered in the correct format and if their answers to the open-ended items were consistent. According to Fink (2009), when an item(s) on a survey is unreliable, respondents may not answer the particular item, respond to the item with comments in the margins, or provide multiple responses to the same item. When any of these occurred in the pilot test the item was reviewed, changes or adjustments were made to the content, and/or to the length, and/or in the order in which the item was placed in the survey.

Certain types of open-ended questions can lead the participant to respond in unintended ways. For example, when asking a question that required a numerical response, such as, "How often do students have physical education class?" One answer may be, "3," while another participant may respond with, "Monday, Tuesday, and

Thursday." To assure the responses to this survey were provided in the intended format, the researcher "appropriately size[d] the answer space for the type of information desired" (Dillman et al., 2009, p. 110). Also, to guide the participant to respond in the correct manner, labels were included next to the response boxes. For example, labels such as "(0-7 days per week)" were placed next to the response box if the intended response was supposed to be in numbers rather than words for days of week students had physical education.

Data Collection

IRB approval from George Mason University was obtained in June 2013, followed by approval to conduct the study from the Bergling School Division in August 2013. In September of the same year, a link to the survey was sent electronically from the Bergling School Division's Department of Health and Physical Education Curriculum Coordinator to eliminate the chance for coverage error. The Coordinator had an email distribution list of all elementary physical education teachers, thereby eliminating the possibility of coverage error (Dillman et al., 2009, p. 17). The survey instrument was formatted for electronic distribution in Survey Monkey (www.surveymonkey.com).

The contents of the email are provided in Appendix C, "Consent to Participate in the Elementary Physical Education in Bergling School Division Survey." To obtain consent to participate, teachers were asked to select "yes" or "no" from voting buttons located in the email. Also included in the email was an explanation of the purpose of the study, which was to explore elementary physical education teachers' implementation of the physical education curriculum, and their knowledge of the state and local school

division policies pertaining to physical education. In addition, the study examined elementary physical education teachers' perceptions of potential factors to implementing the curriculum in their respective schools. Step-by-step instructions with screen shots were provided, along with an access code, and directions on how to submit the survey upon completion. To protect anonymity, no names were required on the surveys.

After an initial survey response count was taken in October 2013, it was determined that another opportunity to respond to the survey was necessary because the response rate was not high enough. Another email was sent to the elementary physical education teachers by the Bergling School Division's Health and Physical Education Curriculum Coordinator asking them to please consider completing the survey within another 2-week window.

Data Analysis

Survey Part One

Descriptive statistics were applied and frequency counts were taken for each of the fifteen factors to curriculum implementation on each survey. Each survey was scored. A range between 13 and 52 was possible given there were 15 factors and a 4-point Likert scale was used. The mean and standard deviation were calculated for each of the 15 factors, and the factors were sorted in order of highest mean score. In addition, a cumulative score were calculated across all surveys to determine a total perception score for the factors to curriculum implementation.

Survey Part Two

Each item in part two was analyzed individually depending on the design of the item and what data was needed. A table was created to identify which quantitative analysis method was applied to each item and a rationale for why the method was used (Appendix D). The specific research question that each item corresponded to was identified in the table.

Frequency counts, percentages, and Chi-squares were calculated for specified variables, including years of experience teaching elementary physical education, years of experience in current school, school size, and school location. In addition to quantitative methods of analysis, qualitative analysis methods were used for open-ended questions.

Analysis of Results Between Survey Parts One and Two

According to Maxwell, "Your analysis strategies have to be compatible with the questions you are asking" (2005, p. 99). In order to strengthen the compatibility from analysis of the data in part one and part two of the survey, a comparison between factors to curriculum implementation and a specific item in part two of the survey was conducted. The independent variable (x) was the responses to an item in part two of the survey, which had to do with the location of the school in which the respondent taught physical education. The dependent variable (y) was the total number of teachers who responded that they strongly agreed or agreed curriculum implementation was impacted by a specific factor. For example, the total number of teachers that identified class size as a factor to curriculum implementation was compared to the number of teachers who responded that they taught in an affluent, middle class, or poor school. Descriptive

statistics were used to examine if relationships existed between selected independent variables (x) and the dependent variable (y). The intent was to examine if the specified school location were related to selected factors to curriculum implementation.

Trustworthiness

Participants' Rights

Ensuring that the survey responses were not connected with teachers' names or the name of the school in which they teach protected the anonymity of the elementary physical education teachers. However, the email included a disclaimer that if the school division requested the data gathered from the surveys, the researcher was obligated to provide access. Regardless, the results were not connected to individual teachers' names or the names of the schools in which they taught.

Researcher's Role and Analyst Triangulation

Researcher bias was a potential threat to validity in this study. According to Maxwell, "explaining your possible biases and how you will deal with these is a key task of your research proposal" (2005, p. 108). The researcher had a connection to the elementary physical education teachers in the Bergling School Division. Her position in the school division was that of curriculum specialist, and her job responsibilities were to lead and guide instruction in elementary physical education. Prior to her this position, she was an elementary physical education teacher.

To avoid researcher bias, the researcher formed a small group to triangulate a check of the results. The group consisted of a classmate in the Ph.D. policy program who also worked with doctoral dissertation approvals in the Bergling School Division, an

assistant principal who was a Ph.D. student in the area of education leadership, and the researcher's dissertation sponsor and cosponsor. Specifically, the group was tasked with reviewing themes generated from the open-ended questions to determine if these were what they found from the data. If not, they were asked to explain why they did not agree. Through discussions with the members of the group, the researcher determined the themes she found in the data were aligned with those of the group.

Chapter Summary

The survey used to gather teachers' perspectives on policy and curriculum in the Bergling School Division was effective in that it was a practical research design for implementing across a large number of schools with a large number of teachers. In addition, the survey included mainly closed-ended items, which allowed for continuity in responses as well as made analyzing the data across subjects more efficient. "Survey instruments are used to collect information with a quick, economic turnaround response rate and provide numeric description of trends, attitudes, and perceptions of the participants" (Fink, 2009, p.11).

The survey also included open-ended items, which allowed participants to write individualized responses. Some of the information the researcher sought to explore could not be effectively gathered from close-ended items. For example, the researcher wanted each physical education teacher to describe what he or she knew about the regulations for physical education instruction in the Bergling School Division to see if there were differences in awareness and/or perception across respondents.

In the analysis, the most prevalent factors to curriculum implementation were determined quantitatively through calculating means and standard deviations for each of the 15 factors. As indicated previously, the items in part one were tested for significance through appropriate statistical methods, which are presented in Appendix D. Simple regression tests were conducted to see if relationships existed between one specific independent variable (such as "x," school size) and one specific dependent variable (such as "y," inability to assess students properly).

The purpose of the study was to explore elementary physical education teachers' in the Bergling School Division implementation of the physical education curriculum, and their knowledge of the state and local school division policies pertaining to physical education. In addition, the study examined elementary physical education teachers' perceptions of potential factors to implementing the curriculum in their respective schools. Moreover, results were analyzed to determine if there were relationships between the factors and specified teacher demographics, school setting, and the teachers' descriptions of the regulations and implications of those regulations as they pertained to implementing the physical education curriculum.

4. RESULTS

This study explored elementary physical education teachers' in the Bergling School Division implementation of the physical education curriculum, and their knowledge of the state and local school division policies pertaining to physical education. In addition, the study examined elementary physical education teachers' perceptions of potential factors to implementing the curriculum in their respective schools. A quantitative approach to data collection was utilized due to the large sample of elementary physical education teachers in the school division. The Bergling School Division (BSD) (a pseudonym), located in Virginia, has over 200 elementary school physical education teachers. Of those, 120 responded to a 32-item survey regarding the topic of school division policy, regulations, and curriculum implementation. Not all of the respondents answered all of the questions. The survey contained mainly Likert-type multiple-choice items as well as four open-ended, short answer items.

The first part of the survey focused on factors that potentially influence how the elementary school physical education curriculum is implemented in the Bergling School Division. Respondents to the survey were asked to select their level of agreement on 15 factors that potentially impact curriculum implementation. Each item was associated with a 4-point Likert scale. As noted earlier, a 4-point scale was used so that the teacher had to decide one way or another and could not be neutral; the rationale was that a factor either

exists or does not exist; there is no way a factor can be viewed as "neutral." On the scale, 1 = "strongly disagree," 2 = "disagree," 3 = "agree," and 4 = "strongly agree." Frequencies and percentages for each of the items were calculated.

The second part of the survey included 13 items that required demographic information as well as items requiring teachers to respond about how they plan for instruction, how physical education is structured in their school and school division, and how policy may or may not influence curriculum implementation. Frequencies, percentages, and Chi-squares were used to analyze the items in part two. In some instances, items in part two were paired with items in part one for analysis. In addition, there were four open-ended items in part two. These items were coded and emergent themes were pulled from the data.

This study had five research questions, and this chapter describes the data corresponding to the research question most associated with the responses. The third research question listed could not be addressed because the data did not yield any findings that could answer it. The questions were:

- To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum?
- To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?

- As a result, how are elementary physical education teachers implementing curriculum in their schools?
- To what extent do specified teacher demographics account for differences in elementary teachers' use of the physical education the curriculum?
- To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?

State and Local Policies and Regulations' Impact in Implementing Curriculum

This section addresses research question 1: To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum? For the purposes of analysis, "policies and regulations" are referred to simply as "regulations."

Knowledge of Regulations for Elementary Physical Education

From the data gathered, physical education teachers in the Bergling School Division have different interpretations and level of knowledge regarding the state and local regulations for elementary physical education. In response to an open-ended item, over 30 (30.8%) of the 82 teachers who responded to this item accurately described a portion of the division-level regulations for physical education. For example, teachers in this group were aware that there is a division-level requirement for students to have a minimum of 60 minutes of physical education per week at the elementary school level. This group is noted as "knowledgeable" in Table 6.

Twenty-four percent (24.6%) of the teachers who responded to this item wrote at least something in their description of the regulation that was accurate. However, they included something inaccurate in their description as well. This group is identified as "somewhat knowledgeable" in Table 6. Four teachers in this group stated that physical education class is scheduled so that classroom teachers have time to meet in collaborative learning teams, but there is nothing in the school division's (or state's) regulations for elementary physical education that state that physical education is scheduled so that classroom teachers can have time to meet, plan, or take a break. Another teacher stated that per the regulations, "no child should be taken out of physical education class for other reasons such as testing in other areas." Nothing in the school division or state regulations discusses a rule pertaining to removing students from physical education class for testing in other subject areas. Another physical education teacher responded, "We have pacing guides. Not sure what else." There is language in the school division's regulations about using the division's program of studies, but the words "pacing guide" are not used.

The majority, 45.6% of the teachers who responded to this item, showed little to no understanding of the regulations that guided implementation of the physical education curriculum in their school division. One teacher wrote, "Nothing." Another stated, "I don't know the regulations," and another teacher wrote "N/A."

Table 6

Knowledge of School Division Regulations for Elementary Physical Education in the Bergling School District

Knowledge of Regulations for Physical Education	*n*	%
Knowledgeable	25	30.8
Somewhat Knowledgeable	20	24.6
Little to No Knowledge	37	45.6
Total	82	100.1

Note. $N = 120$. Percentages are rounded up to the nearest 10^{th}.

Elementary Physical Education Regulations and Curriculum Implementation

When asked if the contents of the regulations for physical education in the Bergling School Division influence the way teachers implement the elementary physical education curriculum, 50.8% or 61 out of the 120 teachers who responded to this questions stated yes. Forty-one teachers (34.2%) stated no, whereas 18 teachers did not respond to this item. The mean is 1.4 and standard deviation is .49 (Table 7).

Table 7

Do the Division's Elementary Physical Education Regulations Influence Curriculum Implementation?

Response	*n*	%
Yes	61	50.8
No	41	34.2
No Response	18	15.0
Total	120	100.0

When the school location was factored in, 12 out of 21 (57.1%) teachers who identified their school as "affluent" felt that the regulation impacted curriculum

implementation. Out of the 54 teachers who described their school community as "middle class," 34 (62.9%) stated that the regulation influences the way they implement the curriculum. Of the 25 teachers who identified their school community as "poor," 13 (52%) stated that the regulation impacted the way they deliver the curriculum. The Pearson's Chi-square test results show $\chi^2 = .642$, which is not statistically significant. This means that regardless of whether the school community is described as affluent, middle class, or poor, teachers feel the contents of the regulations have an impact of curriculum delivery at about the same rate.

Table 8

School Location and Impact of Regulations on Curriculum Implementation

School's Location	Regulations Influence Implementation	
	Yes	No
affluent	12	9
middle class	34	20
poor	13	12
Total	59	41

Note. $N = 120$; 20 respondents did not answer the question about school location.

In an open-ended question, teachers were asked to explain how the regulations for physical education in the Bergling School Division influence the way they implement the elementary physical education curriculum. Out of the 55 teachers who responded, 21 teachers (38.1%) stated not enough time with students as a factor as to how curriculum is implemented (Table 9). Per the school division regulations, students in the elementary grades are required to have a minimum of 60 minutes, with a recommendation of 90

minutes, of physical education class per week. How the school's master schedule is designed is up to the school principal as long as minimum standards are met. The school's master schedule outlines when classes are held during the school day. With special subjects, such as physical education, it means that students may have a 60-minute physical education class once a week, two 30-minute physical education classes a week, or some other format totaling the required 60 minutes. Out of the 55 responses, eight (14.5%) stated that the way the administration designs the master schedule for students to come to physical education class influences curriculum implementation.

Another common response was that the pacing guides tell the teachers exactly what to teach, how to teach, and/or when to teach certain skills and concepts in physical education. Twelve teachers of the 55 who responded to this item (21.8%) stated that the pacing guides/programs of study influence how the curriculum is taught. The pacing guides and programs of study are the elementary physical education curriculum mapped out by grade level, semester, and quarter of the school year. In each quarter there are certain skill theme units teachers are required to teach and assess.

Of the 55 teachers who responded to this item, 20% stated that assessing students to collect data influences curriculum delivery. Other common responses included class size, computer use, space, money, and the additional curricular requirements resulting from the federal grant the school division received for the physical education programs.

Table 9

How Do the School Division's Regulations Influence Curriculum Implementation?

Top 4 Influences on Curriculum	*n*	%
Time	21	47.0
Pacing Guides/Program of Study	12	21.8
Assessing Students	11	20.0
Administration Scheduling Decisions	8	14.5
Total	52	103.3

Note. These are the top 4 influences, as $N = 120$ and 55 respondents answered this question. Percentages are rounded up to the nearest tenth.

In part two of the survey, teachers responded yes or no to the question, "Do you perceive the regulation for physical education in your school division influences the way you implement the elementary physical education curriculum?" Sixty-one of the 101 teachers who responded stated yes and 40 responded no. Of the teachers who stated yes, 27 always use the school division's curriculum to plan lessons, 32 use it often, and two use it seldom. According to the results of the Chi-square test, there is not a statistical significance ($\chi^2 = .609$) between teachers who believe the regulation impacts curriculum instruction and those who do not, and whether or not they always, often, seldom, or never use the curriculum to plan for instruction. Table 10 summarizes the frequency and percentage of teachers who always, often, seldom, or never use the curriculum and whether they believe the regulation influences curriculum implementation.

Table 10

School Division Regulations and Use of the Curriculum

Regulations Impact Curriculum Implementation	Do you use the curriculum to plan for instruction?							
	Always Use		Often Use		Seldom Use		Never Use	
	n	%	*N*	%	*n*	%	*n*	%
Yes	27	22.5	32	26.6	2	1.6	0	0.00
No	18	15.0	19	15.8	2	1.6	1	.008
Total	45	37.5	51	42.4	4	3.2	1	.008

Note. $N = 101$

Perceived Extent Selected Factors' Impact Curriculum Implementation

This section addresses research question two, To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?

Ranking of 15 Selected Factors

Part one of the survey required teachers to select their level of agreement for each of 15 factors for implementing the elementary school physical education curriculum in the school in which they teach. Table 11 lists the 15 factors for curriculum implementation in descending order of number/percentage of teachers who agreed or strongly agreed the factor was one that influenced curriculum implementation.

The top five factors identified as influencing curriculum implementation are large class size, additional duties, low level of priority for physical education, integrating other subjects into physical education, and lack of time with students. The most teachers identified large class size as the factor that influences curriculum implementation, as 78 out of 120 respondents (66.7%) agreed or strongly agreed that large classes impacted

curriculum implementation. The second most prevalent factor identified as influencing curriculum implementation was additional duties outside of the role of physical education teacher. Seventy-eight out of 120 teachers (65.5%) agreed or strongly agreed that additional duties beyond their role as physical educators have an impact on how the elementary physical education curriculum is implemented. The third top factor that impacts how teachers implement the elementary physical education curriculum is the low level of priority for physical education in the schools, which was identified as a factor by 77 out of 120 teachers (65.3%).

Table 11

Factors for Curriculum Implementation in Elementary Physical Education

Factor	*n*	Agree/Strongly Agree (%)
Large class size	78	66.7
Additional duties	78	65.5
Low level of priority for PE	77	65.3
Integrating other subjects	72	61.6
Lack of time with students	71	59.6
Inability to assess student properly	58	48.3
Lack of parent support for PE	40	33.3
Teaching philosophy differences	36	30.0
Ineffective school policies	32	26.6
Lack of support from administration	30	25.0
Lack of financial support	24	20.0
Curriculum doesn't meet needs	24	20.0
Student lack of interest in PE	15	12.5
Insufficient equipment	9	7.50
Insufficient space	9	7.50

Note. $N = 120$. PE = physical education.

Teachers were also asked if integrating other subject areas into physical education was a factor in how the curriculum was implemented. Of 120 respondents, 117 responded to this question. Seventy-two (61%) of the teachers either agreed or strongly agreed that integrating other subjects into physical education had an impact on how the elementary physical education curriculum was implemented, and 59% agreed that that lack of time with students influences how the elementary physical education curriculum is implemented.

Additional Duties Outside of Teaching Physical Education

As noted in the factor rankings, the physical education teachers who responded to the survey cited additional duties as the second greatest factor on curriculum implementation. In an open-ended question, they were asked to identify duties they were responsible for at their respective schools that were outside of their role as physical education teachers (Table 12). Out of 109 responses, 61 (55.9%) responded that they were safety patrol sponsors. Sixty percent stated they have some form of arrival/dismissal duty outside by the bus and car pick-up locations. Other common responses include lead teachers on committees such as the Positive Behavior Instructional Support (PBIS) and the Responsive Classroom committee. Other physical education teachers listed wellness liaison, curriculum committees, cafeteria duty, and student mentor as additional roles they hold in their respective schools.

Table 12

Additional Duties Outside of Teaching Physical Education That Influence Curriculum Implementation

Additional Duties	*n*	%
Safety Patrol Sponsor	71	65.1
Arrival/Dismissal Duty	62	56.8
Wellness Liaison	21	19.2
Mentor	10	9.1
PBIS/Responsive Classroom Coach	10	9.1
Curriculum Committees	8	7.3
Cafeteria Duty	7	6.4

Note. PBIS = Positive Behavior Instructional Support.

How Curriculum is Implemented

Research question 3 was: As a result (of the answers to research questions 1 and 2), how are elementary physical education teachers implementing curriculum in their schools? This research question could not be answered from the data gathered in the survey, and the researcher now believes a qualitative study would be needed to gather the data to answer this question. Physical education teachers would need to be interviewed and specifically asked how they were implementing the curriculum.

Demographics' Effect on Curriculum Use

This section addresses research question 4, To what extent do specified teacher demographics account for differences in elementary teachers' use of the physical education curriculum?

Fifty-nine out of 112 (52.2%) of those who responded to this question have taught elementary physical education for over 10 years. Out of those 112 respondents, 24.1% stated that they always use the Bergling School Division's curriculum to plan for

instruction. Thirty-one teachers (27.6%) of those 112 respondents stated that they use the curriculum often. One of the 59 teachers reported seldom using the program of studies.

Fifty-three out of the 112 respondents to this question have taught elementary physical education for less than 10 years. Out of those 112 teachers 19.6% always and 24.1% often use the Bergling School District's curriculum. Three of those teachers stated they use the curriculum seldom, and one teacher reported not using the program of studies to plan for lessons. According to the results of the Chi-square test, there is not a statistical significance ($\chi^2 = .480$) between teachers who have taught for more than 10 years and those who have not in relation to using the elementary physical education curriculum. Table 13 summarizes the frequency and percentage of teachers who always, often, seldom, or never use the curriculum, sorted by whether if they have taught for more or less than 10 years.

Table 13

Years of Teaching and Use of the Curriculum for Physical Education Instruction

# of Years Teaching	Always Use		Often Use		Seldom Use		Never Use	
	n	%	*n*	%	*n*	%	*n*	%
>10	27	24.1	31	27.6	1	.08	0	0.00
<10	22	19.6	27	24.1	3	2.60	1	0.08
Total	49	43.7	58	51.7	4	2.68	1	0.08

Note. 112 of 120 respondents answered this question.

Regarding level of education, 112 teachers responded. Only one degree level could be selected, the last degree earned. Of those teachers, 50 hold a bachelor's degree, 60 hold a master's degree, and 2 teachers hold a doctoral degree. Forty-eight percent of

those teachers who hold a bachelor's degree noted that they always use the school division's program of studies, whereas 44% reported using it often. Of the 60 teachers with master's degrees, 38% use the Bergling School District's curriculum always, 60% use it often. The two teachers who have doctoral degrees both identified that they always use the curriculum to plan for instruction. According to the results of the Chi-square test, there is not a statistical significance ($\chi^2 = .113$) between teachers who hold bachelor's, master's, or doctoral degrees in relation to use of the elementary physical education curriculum. Table 14 summarizes the frequency and percentage of teachers who always, often, seldom, or never use the curriculum according to the last degree they earned.

Table 14

Last Degree Earned and Teachers' Use of the District's Curriculum

Last Degree Earned	Always Use		Often Use		Seldom Use		Never Use	
	N	%	*n*	%	*N*	%	*N*	%
Bachelor's	24	20	22	18.3	4	3.3	0	0.000
Master's	23	19	36	30.0	0	0.0	1	0.008
Doctorate	2	100	0	0.0	0	0.0	0	0.000

Note. 112 of 120 respondents answered the question regarding highest level of education.

School Setting's Influence on Curriculum Use

This section addresses research question five: To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?

Of the 109 teachers who responded to the question about school setting's income level, 22 teach in affluent schools, 56 teach in middle class schools, and 31 teach in low

socioeconomic schools. Of the 22 who teach in affluent schools, eight (36%) identified that they always use the school division's elementary physical education curriculum. Twenty-six (46.6%) of teachers from middle class schools, and 14 (45.5%) from poor schools stated they always use the elementary physical education curriculum. Thus the number of teachers from all income demographics of schools who use the school division's curriculum is much greater than those who do not. Out of the 109 teachers who responded to this question, one from an affluent school, two from middle class schools, and one from a poor school reported seldom or never using the school division's curriculum. According to the results of the Chi-square test, there is not a statistical significance ($\chi^2 = .772$) between teachers who teach in affluent, middle class, or poor schools in relation to use of the elementary physical education curriculum. Table 15 summarizes the frequency and percentage of teachers who always, often, seldom, or never use the curriculum in relation to the school's income location.

Table 15

Teaching Location's Income Level and Teachers' Use of the District's Curriculum

School	Always Use		Often Use		Seldom Use		Never Use	
Location	*N*	%	*n*	%	*n*	%	*n*	%
Affluent	8	7.3	13	11.9	1	.009	0	0.000
Middle Class	26	23.8	28	25.6	2	1.800	0	0.000
Poor	14	12.8	15	13.7	1	.009	1	0.009

Note. 109 of 120 respondents answered the question regarding their school location's income level.

Part of the school's setting is also the teaching environment. In the Bergling School Division all of the elementary schools have a gymnasium and some type of field

and blacktop space. In the majority of the elementary schools there are two full-time physical education teachers teaching in the same gym. Planning for instruction becomes a team effort. Therefore, understanding how teachers in the co-teaching environment use the prescribed school division's curriculum is part of learning how the curriculum is being implemented. Furthermore, it is important to understand how those teachers who teach alone plan for instruction.

Out of the 112 teachers who responded to the question about team teaching, 108 identified that they co-teach with another physical education teacher, and four noted that they did not. Out of the teachers who co-teach, 48 stated they always used the school division's curriculum, 55 stated they often used it, and four seldom used the curriculum to plan for instruction. Overall, 42% of teachers who teach with another teacher always use the required curriculum. Out of the four teachers who do not co-teach, one always uses the required physical education curriculum and three use the curriculum often. Table 16 summarizes the frequency and percentage of teachers who always, often, seldom, or never use the curriculum in relation to co-teaching.

Table 16

Individual and Team Teaching Environments and Teachers' Use of the Curriculum

Type of	Always Use		Often Use		Seldom Use		Never Use	
Teaching	*N*	%	*n*	%	*n*	%	*n*	%
Coteach	48	44.4	55	50.9	4	0.03	0	0
Teach Alone	1	25.0	3	75.0	0	0.00	0	0

Note. 112 of 120 respondents answered the question regarding co-teaching.

Another aspect of the school setting is the master schedule, which includes the amount of time allotted for teachers to plan for instruction. All teachers in the Bergling School Division are required to plan for instruction. Physical education teachers are to have at least a lunch break each day and they may use the time however they wish. Some may use it for planning. In terms of scheduled planning time, there may be days where the physical education teacher has one assigned planning time, and others where he or she has none. As long as the principal meets minimum standards per the school division's regulation for elementary physical education teacher instructional minutes (not to exceed 1,360 minutes of instruction per week), the teachers can allocate planning time however they choose. Out of the 111 teachers who responded to the question about scheduled planning time, 21 have less than 30 minutes of plan time per day, 55 have less than 60 minutes per day, and 23 have between 60 and 90 minutes per day. The 12 teachers who responded "other" have a combination of the three choices, and those times vary by the day in their teaching schedules (Table 17).

Table 17

Scheduled Time for Instructional Planning

Average Time Per Day Allotted to Plan for Instruction	*n*
Less than 30 minutes	21
Less than 60 minutes	55
Between 60 and 90 minutes	23
Other	12
Total	111

Note. $N = 120$.

There is no statistical significance (χ^2 =.852) between the amount of scheduled planning time and the use of the curriculum to plan for lessons among the three groups. Table 18 identifies the frequency and percentage of teachers who always, often, seldom or never use the curriculum to plan for instruction and the amount of time they have for planning during the workday.

Table 18

Scheduled Time for Instructional Planning and Use of the Curriculum

Average Time Per Day Allotted to Plan for Instruction	Always Use		Often Use		Seldom Use		Never Use	
	n	%	*n*	%	*n*	%	*n*	%
Less than 30 minutes	7		13		1		0	
Less than 60 minutes	24		27		3		0	
Between 60 and 90 minutes	11		12		0		1	
Other	7		5		0		0	
Total	49		57		4		1	

Note. 111 of 120 respondents answered the question regarding time to plan for instruction.

Chapter Summary

The elementary physical education teachers in the Bergling School Division have a varied level of understanding about the state and school division policies and regulations that outline how the subject is to be implemented. The most common correct answer about these policies and regulations is that students in elementary school are to have at least 60 minutes of physical education class per week. However, the regulations include much more than just the amount of time for physical education. Furthermore, only two teachers out of 82 who responded to the open-ended question about division

policies and regulations included that although 60 minutes is required, 90 minutes of physical education per week is recommended. Nearly half of the teachers who responded to this question (45.6%) knew little or nothing about the policies and regulations for elementary physical education in their school division.

The elementary physical education teachers who participated in the study, for the most part, reported using the Bergling School Division's curriculum to plan for instruction. Although teachers overwhelmingly reported using the curriculum to plan for instruction, they noted definite factors that impacted how the curriculum was implemented. The most prevalent factors were class size, additional duties assigned outside of the teaching role, low level of priority for physical education, the requirement to integrate other subjects into physical education, and lack of time with students. Chi-square analysis revealed demographics and school setting elements were not statistically significant in terms of their influence on use of curriculum.

5. CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Federal, state, and local school policies since the No Child Left Behind (NCLB) Act of 2001 have increased the focus on student achievement in subjects such as math and reading. Special subjects such as physical education have become less of a priority. At the same time childhood obesity is a serious public health problem that is growing across the United States. Virginia schools provide an opportunity for students to have time for physical activity and to gain the skills and cognitive knowledge about being physically active through physical education class.

The purpose of the study was to explore elementary physical education teachers' implementation of the physical education curriculum, and their knowledge of the state and local school division policies pertaining to physical education. In addition, the study examined elementary physical education teachers' perceptions of potential factors to implementing the curriculum in their respective schools.

There are five research questions associated with this study. The third research question listed could not be addressed because the data did not yield any findings that could answer the question; that question is: How are elementary physical education teachers implementing curriculum in their schools? The four remaining questions are:

- To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations

pertaining to physical education impact their implementation of the curriculum?

- To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?
- To what extent do specified teacher demographics account for differences in elementary teachers' use of the physical education the curriculum?
- To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?

Conclusions

There are four major findings from this study. First, the elementary physical education teachers who participated in the study had varied levels of knowledge about the policies and regulations governing how elementary physical education is to be implemented in their school division. Second, regardless of their level of knowledge, over 50% of them believed that the regulations have an impact on how the curriculum is implemented. Third, study participants identified five major factors that impact curriculum implementation: large class size, additional duties outside of teaching role, low level of priority for physical education, requirement to integrate other subjects into physical education, and lack of time with students. The fourth major finding is that the teachers overwhelmingly reported that they are using the Bergling School Division's curriculum to plan and teach their physical education classes.

Additional good news is that physical education teachers in the Bergling School Division don't report issues with equipment or facilities. Both of these potential factors to

curriculum implementation ranked last and second to last out of the fifteen factors teachers were asked to rate on a 4-point scale as to having impact on their ability to delivery instruction. Only 7.5 percent agreed or strongly agreed that equipment and facilities were factors to curriculum implementation. Another piece of good news is that 65 percent of the physical education teachers that participated in the study report using the school divisions prescribed curriculum to plan for instruction. This means that students across the Bergling School Division are receiving the same content in physical education class. The school division's curriculum is required and based on the standards of learning for physical education in the Commonwealth of Virginia.

The good news for policy makers is that the policies and regulations are not hindering or discouraging teachers from utilizing the prescribed curriculum to plan for and to teach physical education. The policy and the accompanying regulation are referred to as the one governing time for teaching (TTT) in special-subject disciplines (art, music, and physical education). The TTT regulation requires a minimum of 60 minutes per week for physical education ("Time Allocations for Instruction," Bergling School Division, 2011, 3218.1). The TTT regulation includes the following statement:

> Ensure physical education teachers provide no fewer than two instructional segments totaling a minimum of 60 minutes of instruction weekly for students in kindergarten through grade six. Two or more instructional segments totaling a minimum of 90 minutes is the recommendation. Section 22.1-253.13:1 of the Code of Virginia recommends that students participate in 150 minutes of physical activity weekly provided by physical education, extra-curricular activities, or

other programs and physical activities. ("*Elementary School Art, Music, and Physical Education Program*," Bergling School Division, 2013, 3218.2)

Discussion

Links to Previous Research on Elementary Physical Education

This study contributes to the body of knowledge regarding elementary physical education in a number of ways. In a study on the processes and outcomes of implementing state-level childhood obesity policies in Mississippi and Tennessee public schools, Amis, et al (2012) found that physical education class size was expanding and physical education class time was being reduced to make time for standardized testing in core subjects such as Math and Language Arts: "Administrators, teachers, and students across the eight schools that we studied repeatedly informed us that standardized test performances have become the overarching concern of classroom-based teachers and school administrators to the detriment of other subject areas, including physical education" (p. 1408). One public school principal interviewed for that study went so far as to say that elective classes, such as physical education class, were being phased out in order to budget for hiring more teachers in test subject areas with the goal of reducing class size. As principals seek to reduce class size in the core test subjects, such as math, the number of students in physical education classes continues to grow. Teachers in the Bergling School Division have similar feelings about physical education in their schools. Large class size, lack of time with students, and low priority for physical education due to the emphasis on core subjects all rank in the top five greatest influences on curriculum implementation according to the teachers who responded to the survey.

In a mixed methods study, Neese (2012) surveyed and interviewed elementary school teachers, principals, and a superintendent in nine schools located southwest of Los Angeles, California. The purpose of the study was to examine factors contributing to the implementation of standards-based elementary physical education curriculum. One of the major findings from the study was that teachers "followed a standards-based physical education curriculum to teach physical education content. Due to curriculum guides, the teachers suggested they are more inclined to ensure students have physical education during the week" (Neese, 2012, p. 152).

Similar to Neese's findings, teachers in the Bergling School Division reported they were using the required elementary curriculum to plan for and teach their physical education classes. The Bergling School Division's Department for Health and Physical Education produces standards-based curriculum guides that outline what teachers should be teaching at which grade level and the pace for which they should progress from one unit to the next. In addition, the curriculum guides, also called pacing guides, provide the standards and benchmarks that must be taught and assessed in each unit. The curriculum guides provide a high level of detail and a specific timeline, which may be the reason teachers in this study report using the curriculum at such a high rate.

In a quantitative, cross-sectional study, Antoine (2012) examined the relationship between teachers' demographics and their perceptions of barriers in physical education and physical activity. The researcher used a Likert scale design for the items in the survey, in which participants were asked to rate eight perceived barriers to physical education and physical activity on a scale from 1-5. A rating of 1 meant the participants

strongly agreed that the barrier hindered their ability to provide physical education and physical activity in their respective schools up to 5, which meant that the participants strongly disagreed. The eight barriers included: inadequate indoor and/or outdoor facilities, insufficient number of physical education specialists, low level of principal support, low priority relative to other academic subjects, inadequate financial resources, large class size, insufficient time in the school day, and insufficient equipment and materials (Antoine, 2012, p. 60). In addition to these barriers, Antoine asked about "insufficient school policy as it pertains to adequate physical education and physical activity programs as a school barrier" (p. 17). From analysis of the data, the location of the school in which the teachers worked had an impact on the number of barriers. Teachers working in urban and rural schools perceived more barriers than those who worked in suburban schools. Antoine also found "that there is a need for school district leaders to provide school policies that cater to quality physical education and physical activity program implementation in low-income urban schools" (p. 84). The significance of the survey's findings is that, "it could also help schools with initiating professional development that addresses the importance of which cultural and social characteristics most affect educators' views of barriers to physical education and physical activity" (p. 17).

Similar to Antoine's survey, teachers in the Bergling School Division were asked to best describe the location of the schools where they teach as being affluent, middle class, or low socioeconomic status (SES). Of the 109 teachers who responded to the question, 22 described their schools as affluent, 56 described their schools as middle

class, and 31 described their schools as low SES. Teachers in this study were asked to rate their level of agreement with 15 potential factors for curriculum implementation on a Likert-scale from 1-4 (1-Strongly Disagree, 2-Disagree, 3-Agree, 4-Strongly Agree). The 15 factors are listed in Appendix A: Elementary Physical Education Teacher Survey. Out of the 22 teachers who described their schools as affluent, 16 agreed/strongly agreed that large class size is a factor to curriculum implementation, meaning it is the highest reported factor to curriculum implementation according to the teachers from affluent elementary schools. The second highest factor is a tie between low level of priority because of other academic subjects and not enough time with students. Forty-four out of 55 teachers in middle class schools reported large class size more than any other factor, and a close second was not enough time with students. Out of the 31 teachers from low SES schools, not enough time with students was the most widely reported factor to curriculum implementation, followed by low level of priority because of other academic subjects. In comparison to Antoine's study, the data gathered from this study shows it does not matter whether a teacher teaches in an affluent, middle class, or low SES school: The factors to curriculum implementation are consistent across all three settings.

Unexpected Finding

An unexpected finding in this study has to do with additional duties assigned to physical education teachers outside of their teaching role. Sixty-five percent of teachers agreed or strongly agreed that additional duties influenced how the curriculum was implemented. When asked to identify any duties they do for the school besides teaching physical education, teachers had long and varied lists. For instance, one teacher wrote,

"wellness liaison, safety patrol sponsor, principal designee, bus duty, crisis management team, responsibility to community committee, playground committee, flu clinic, student mentor, faculty advisor committee, and blood drive." Another teacher listed, "kiss and ride duty, bus duty, patrol sponsor, student government association sponsor, school improvement plan committee, science fair committee, new teacher mentor, curriculum development committee, and lead physical education teacher."

The implications of additional duties on instruction range from taking away time needed time to plan for teaching to classroom interruptions. For example, many of the physical education teachers report having morning bus duty. When the buses arrive, teachers must be present to greet students and supervise them to ensure they arrive safely. If bus duty ends at 9:20 and classes begin at 9:30, the physical education teacher must rush to the gym to set up his or her classroom to prepare for the first class. Often times there is a lot of equipment to set up, which takes time to prepare. Unless the physical education teacher arrives earlier than he or she is required, it is difficult to be ready to teach after a morning duty. Not to mention, buses can run late which means even less time for set up. Another duty that is often given to physical education teachers is safety patrol sponsor. As a safety patrol sponsor, the teacher must take safety reports from student safety patrols as well as other students regarding issues in the halls, on buses and bus stops and when students are walking to and from school. Often times, students will ask to speak to the physical education teacher about an incident during class even though the teacher is teaching and not in the safety patrol sponsor role. Taking reports from patrols and other students during a 30-minute physical education class is distracting and

takes away from the purpose of the class as well as from the other students that are in physical education to learn. In addition to safety patrol sponsor, physical education teachers are often pulled to remediate students that are struggling in other subjects. For example, a principal may request that every day at a certain time the physical education teachers meet with a small group of students that are failing in math to provide small group remediation. This type of duty is scheduled on what would normally be a planning period for the physical education teacher. Not only does this duty take away precious minutes the teacher could be using to plan for their physical education lessons, but additional time is need to coordinate with the classroom teachers to know what material they are reviewing with students. In fact, the physical education teacher may find they need plan time to plan for their remediation group lessons. With the laundry list of additional duties teachers described, it is no wonder the majority of them believe their ability to implement the required physical education curriculum is hindered.

Implications of Teachers' Lack of Knowledge About Elementary Physical Education Policies and Regulations

The responses to one particular item on the survey asking teachers to describe what they know about the regulations for physical education in their school division revealed that there is a huge lack of understanding about these requirements. Although some of the responses were accurate, none of the responses showed a high level of understanding. More than one teacher wrote of not knowing anything about the regulation. If teachers do not know the details of the regulations that guide instruction, it may be difficult for them to implement the curriculum in a consistent manner across the

school division. For instance, there is a statement in the regulations that physical education teachers will ensure there is integration of grade level content in all subject areas into the physical education curriculum. Teachers who do not know this is a requirement for physical education and/or those who know little about it may not be integrating other subjects as required.

Another issue that may arise when teachers are not well educated in the regulations and policies guiding curriculum in their school division has to do with planning time and time for teaching. Teachers without awareness of the regulations in the Bergling School Division may not know that there is a requirement that all elementary physical education teachers are to have at least 390 minutes of planning time over a two-week period. Without knowing how much time teachers are supposed to have to plan, they cannot advocate for themselves when they are asked to take on additional duties outside of their teaching role. In addition, they may not realize they are supposed to provide 1,360 minutes of instruction per week and that the instruction is to include small group and enrichment classes.

Recommendations

Future Research

The majority of the elementary physical education teachers in this study reported that they were using the school division's curriculum to plan for instruction. In addition, the majority of teachers reported that the school division regulation impacts their ability to deliver instruction. Another finding that makes the former and latter perplexing is that the majority of teachers reported knowing little to nothing about the school division

regulation outlining requirements for elementary physical education. The question remains as to how can the teachers be using the curriculum, but don't know anything about the regulation that outlines how curriculum is to be delivered in their respective schools? Furthermore, how can the contents of a regulation hinder a teacher's ability to implement the curriculum when he or she claims to not know anything or know very little about the regulation? The only way to get to the bottom of this issue is to physically see how the curriculum is being implemented and compare those observations to what is written in the curriculum. Furthermore, talking to the physical education teachers about how they use the curriculum to plan for and provide instruction is necessary to understand if the curriculum is being implemented as intended and as outlined in the school division regulation.

What was not explained from the survey data is *how* the teachers were implementing the curriculum. A qualitative study is recommended to find out how the curriculum is being implemented in each of the schools. Physical education teachers should be interviewed and observed. The researcher should ask about teachers' lesson planning process, how they pull from the curriculum to plan, and if they follow the proper timeline for teaching each unit as outlined in the curriculum guides. In addition, the interview should include questions about the teachers' abilities to follow the curriculum given the setting in which they teach. For example, how do class size, student demographics, teacher's experience and education, the teaching facility, additional duties, and the master schedule influence the teacher's ability to implement the curriculum?

Furthermore, future studies should include an observation component. During the observations, the researcher should request to videotape physical education classes in each of the schools with which they conduct interviews. If at all possible, the teachers in each of those schools should be teaching the same grade level and same skill theme unit (e.g. dribbling with the feet, volleying, and striking with long-/short-handled implements). According to the Bergling School Division's curriculum guide, all schools should be teaching the same skill theme units during the same time of the school year. The researchers should review the videos and look for similarities and differences across lessons. In addition, they should compare the videos to what is supposed to be taught in the curriculum to see how closely the written curriculum is being translated into the teaching setting.

Recommendations for Federal Legislators

Obesity is a serious issue for children, adolescents, and adults. Scholarship on child overweight and obesity is abundant. President Obama established the first White House task force on childhood obesity in 2010 (White House Office of the Press Secretary, 2010). The task force reviewed research on topics such as healthy foods in schools and increasing physical activity. The White House Task Force was to report current data about childhood obesity in the United States, and offer strategies for combating the problem. According to the Task Force,

> One in every three children (31.7%) ages 2-19 is overweight or obese. One third of all children born in the year 2000 are expected to develop diabetes during their lifetime. Childhood obesity also creates potential implications for military

> readiness. More than one quarter of all Americans ages 17-24 are unqualified for military service because they are too heavy. Excess weight is also costly during childhood, estimated at $3 billion per year in direct medical costs. (p. 3)

Members of the task force stated that physical education is a key component of a school-based comprehensive physical activity program, teaching children the purposes and skills for physical activity, and increasing fitness levels. A school-based comprehensive physical activity program includes physical education, classroom activity breaks, before- and after-school activity clubs, and recess (at the elementary level). The Task Force recommended that local and state education agencies increase physical education at all grade levels, and ensure certified physical education teachers teach these classes.

Regardless of President Obama's efforts to tackle the childhood obesity crisis through a White House Task Force, the provisions set forth in the No Child Left Behind Act [NCLB] of 2001 make the recommendations of the task force nearly impossible. NCLB increased the focus on student achievement in subjects such as math and reading. Although NCLB is silent on physical education, this federal law influenced state provisions for physical education, such as in the Virginia Standards of Quality (SOQ) for Education. As one example, proposed legislation in Virginia to increase time for physical education at the elementary level was negatively impacted by the drive for student achievement in reading and math expectations of NCLB, which increased the focus on student achievement in subjects such as math and reading. In the future, it would be helpful for federal legislators tasked with revising NCLB to consider the impact of the requirements on subjects such as physical education. Federal legislators should consider

including physical education as a core academic subject, and set provisions for success just as they have for subjects such as language arts and math. Including physical education as a core academic subject would make it a requirement for all states. Currently, physical education is not a federal requirement, leaving it up to state governments to determine if and to what extent physical education is taught in schools.

Recommendations for State Legislators

Currently, elementary physical education is a required course in the Commonwealth of Virginia. However, the statutes in the Code of Virginia do not specify the amount of time students should attend physical education class at the elementary school level. The American Association for Health, Physical Education, Recreation, and Dance as well as the Centers for Disease Control and Prevention recommends 150 minutes of physical education per week for elementary-age students (National Association for Sport and Physical Education, 2012, p.10). Childhood obesity is a national problem costing three billion dollars per year in healthcare costs. Virginia legislatures should consider the health care costs associated with childhood obesity and lobby to have the school-division regulation match the national recommendations for physical education for all students.

Furthermore, the Virginia Department of Education produces Standards of Learning for physical education and requires school divisions align curriculum to meet those standards. However, there is no SOL assessment to show students' achievement in physical education class. Virginia legislators should require students be assessed on those standards to ensure the curriculum standards are being taught and students are learning.

Otherwise, there is no need to require SOLs for physical education, and no need to have a structured curriculum. Moreover, certified physical education teachers are not needed if there is no need for a structured curriculum because anyone can make up games and activities to play. Although it would be cost efficient to eliminate the need to pay licensed physical education teachers, the quality of instruction would not be upheld. Therefore, if quality instruction is important, and a standards-based curriculum is required, it makes more sense to require an assessment to show if students are learning in physical education then to make an assumption that the curriculum is being taught as intended.

The statutes in the Code of Virginia are up for revision every two years. The General Assembly has the capacity to add codes for education as well. Therefore, the Virginia General Assembly should add a statute requiring 150 minutes of physical education per week in elementary school, and require that school divisions implement a physical education SOL assessment.

Recommendations for School Division Policy Makers

Large class size, not enough time with students, and low level of priority for physical education is the top three factors to curriculum implementation in this and study. All three factors are addressed in the Bergling School Division's regulations for special subjects to include art, music, and physical education. School division policy makers should ask music and art teachers the same questions as the physical education teachers were asked in this study to determine if the same factors influence how they implement their respective curriculums. Once established, the policy makers should take these factors into account when revising the regulations.

Currently, there is no recommendation for physical education class size in Bergling School Division regulations. Instead, the word "attempt" to maintain normal class size is the only reference to class size. "Attempt" is vague and passive language, giving principals flexibility to decide what the class size will be. Also included in the regulations is the time allocation for students in physical education: Students are to have a minimum of 60 minutes of physical education per week, with a recommendation for 90. If teachers are reporting not enough time with students as a major factor to curriculum implementation, policy makers should consider increasing the time. Moreover, the American Alliance for Health, Physical Education, Recreation, and Dance recommends 150 minutes of physical education per week for elementary school children (National Association for Sport and Physical Education, 2012, p.12). Finally, teachers in this study and others reported low levels of priority for physical education because of other academic subjects as a major factor for curriculum implementation. Because the regulations for physical education include language about integrating and honoring other subjects' content in physical education class, policy makers should be well versed in the amount and complexity of the elementary physical education curriculum to determine if requiring physical education teachers to implement other subjects into their classes, especially considering the current time element of only 60 to 90 minutes of physical education per week).

Recommendations for Principals

Principals are responsible for ensuring their students have the highest quality instruction possible in all subject areas. To ensure quality instruction for all students,

principals must protect and uphold the instructional integrity of all subjects. Therefore, principals should suggest the regulations for physical education be rewritten to address the factors that most impact curriculum implementation in physical education. According to the findings in this study, class size, time with students, and low priority for physical education impact curriculum implementation more than any other factor. As noted in the previous section, currently there is not a specific class size for physical education in the school-level regulations. Principals should follow Virginia Code for class size and request the same ratios be included in the school-division regulations for physical education. Section 22.1-253.13:2 of the Code of Virginia recommends that class size should adhere to the ratios of,

> (i) 24 to one in kindergarten with no class being larger than 29 students; if the average daily membership in any kindergarten class exceeds 24 pupils, a full-time teacher's aide shall be assigned to the class; (ii) 24 to one in grades one, two, and three with no class being larger than 30 students; (iii) 25 to one in grades four through six with no class being larger than 35 students; and (iv) 24 to one in English classes in grades six through 12. (Code of Virginia, "Instructional, Administrative, and Support Personnel," § 22.1-253.13.2).

The American Association for Health, Physical Education, Recreation, and Dance as well as the Centers for Disease Control and Prevention recommends 150 minutes of physical education per week for elementary-age students (National Association for Sport and Physical Education, 2012, p.10). Principals care about the physical wellbeing of their

students and should lobby to have the school-division regulation match the national recommendations for physical education for all students. An implication of increasing the amount of physical education time per week is cost in staffing and to a lesser extent facilities and resources.

The current regulations state that physical education teachers will integrate other content areas into physical education. The physical education curriculum is designed to meet grade level specific standards and benchmarks. There is a large curriculum including knowledge and skills to be taught and assessed in physical education. Asking teachers to integrate other topics, such as social studies, science, language arts, and math into physical education takes away from the already limited time teachers have to teach the physical education curriculum. With only 60 minutes per week with students in physical education class, principals should ask that the integration piece is removed from the regulation so that physical education teacher can concentrate on implementing the physical education curriculum.

Principals are at the mercy of the school board and the superintendent. They act as middlemen and women charged with enforcing and abiding by the policies and regulations set forth at the school division level. Regardless, they have a voice. In the Bergling School division there is an Elementary School Principals Association [ESPA]. If principals have issues, concerns, and/or suggestions they can take them to the ESPA, which is run by elementary principals who act as representatives for all of the principals in the division. The ESPA governing board takes topics of concern to the school board and superintendent for support.

Recommendations for Teachers

Physical education teachers should educate themselves in the policies and regulations governing implementation of the curriculum they teach. Without an understanding of what is required, teachers have no way of knowing if the regulations are being met. The physical education teachers can use the information from the regulations to ensure that their principal is providing them with enough time with students, as well as enough time for planning for instruction. Furthermore, they need to know that integrating other subjects into physical education is part of the regulations. If a physical education teacher finds that the regulations are not being enforced properly, he or she can request to discuss options with his or her principal. If the principal is unwilling to make changes to meet regulations, teachers can ask the health and physical education curriculum administrators to help the principal understand the importance of following regulations to ensure students receive the highest quality physical education instruction.

Physical education teachers can advocate for their profession by joining their state and national professional associations. In Virginia, the association is the Virginia Association for Health, Physical Education, Recreation, and Dance [VAHPERD]. VAHPERD supports physical education teachers, and takes concerns such as time with students to the state department of education and to the state legislators for support. VAHPERD conducts research and publishes articles about the importance of physical education in schools as well as hosts biannual conferences for teachers. In addition, the national association, the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD), puts together an annual federal lobby day. Physical education

teachers are invited to attend the lobby day each year at which the association sets up meetings with members of Congress and their staff to discuss the state of physical education and to garner their support for keeping physical education in schools.

Limitations

This study had three major limitations: communication issues, a smaller than anticipated sample lacking certain identifiers, and an information gap. The size of the school division was a contributing factor to all of the limitations. With over 200 elementary school physical education teachers and more than 100 elementary schools in the division, it is no wonder communication is a challenge. Providing the same information, and insuring all teachers read emails in a timely manner or at all may have contributed to the smaller than anticipated response rate. Moreover, it is not surprising there is an information gap between the teachers and the policy makers. In a large school division it may be a challenge for policy makers to communicate the policy directly to the teachers and vice versa, it may be difficult for the teachers to communicate the obstacles they face in implementing the policies and curriculum.

Communication

One of the challenges to conducting this study was communication. The Bergling School Division is large, with over 100 elementary schools and over 200 elementary physical education teachers. The coordinator of Health and Physical Education was the contact person who sent out the link to the survey and the information teachers needed to have in order to participate in the study. As the researcher, I was unable to communicate directly to the teachers. The coordinator for Health and Physical Education did not have

time to answer questions or act as the go-between for the teachers and me. Therefore, there was no way for teachers to ask questions about the survey, and no way for me to follow up with participants. I was able to have a reminder to complete the survey sent to the teachers prior to the due date, and when the initial response was low, I was able to request an extension window.

One part of the process that was not implemented as planned was the incentive. Originally, I planned to do a random drawing of three teachers' names at the close of the first survey window and give out three prizes. However, the coordinator for Health and Physical Education was concerned that having the teachers emailing her would place an additional burden on her time. I improvised and sent a dozen chocolate-covered strawberries to 12 locations where teachers were attending professional development meetings in early October 2013. At that point the due date for completing the survey as well as the due date for the extension window had passed. I included a thank you note with each box of strawberries, and in a last-ditch effort asked that any teachers who had not completed the survey please consider doing so. As a result, I was able to obtain additional responses, bringing the response rate to approximately 50%.

Sample

Out of over 200 elementary physical education teachers in the Bergling School Division, I collected 120 responses (roughly 50%). I had hoped to get closer to a 75% response rate, and have no way of knowing if the other half of the teachers would have answered the questions similarly. This makes the findings potentially less valid and less

generalizable. A smaller sample size is not as credible because it does not represent the majority of the teachers.

Because of the way the survey was designed, and to protect respondents' identities, another issue with the sample is that I had no way to know which schools the teachers were from, and which respondents were teaching partners at the same school. Furthermore, I did not have access to the socioeconomic classifications for individual schools. I gathered as much information as I could though the survey by asking the teachers to identify which demographic represented their school's student population the best: poor, middle class, and affluent. This information enabled running comparisons on how many factors to curriculum implementation were present in schools labeled as poor, middle, and affluent. The findings showed little difference in the number of factors and the most popular factors teachers identified as impacting curriculum implementation and the demographic they served. It would have been helpful to have access to each school's SES to see if what the teachers reported as poor, middle, and affluent was accurate. In addition, it would have been helpful to know if any two teachers responding taught in the same school. This would have enabled comparing their responses and determine if their perspectives were in alignment, which may have revealed the reliability of their responses.

Information Gap

Another limitation was that I was not able to find out how the curriculum was being implemented—the research question I was not able to answer from the data. How the elementary physical education curriculum is implemented is important to understand

because it is a standards-based curriculum that is supposed to be implemented with consistency across the school division. The teachers who responded to the survey reported they overwhelmingly used the curriculum to plan for and teach their lessons. However, the teachers reported a variety of factors that influenced how they are teaching the curriculum in their respective schools. In hindsight, there is no discernable way to ask a question on a survey that would provide accurate and/or sufficient information as to how the curriculum is being implemented. The best way to understand how curriculum is being implemented would be through interviewing the teachers as well as observing their teaching. This study could have been stronger if there were a qualitative portion, which included interviews and observations.

Summary

There are four major findings from this study. First, the elementary physical education teacher respondents overwhelmingly lacked knowledge and understanding of school division policies/regulations for physical education. Second, regardless of their level of knowledge, over 50% believed that the regulations impacted how the curriculum is implemented. Third, the teachers were using the Bergling School Division's elementary physical education curriculum to plan and teach their students. Fourth, there are several commonly agreed upon factors that impact curriculum implementation: large class size, lack of time with students, and low priority for physical education due to other national and state requirements.

The missing piece of this study is to better understand how the curriculum is being implemented given the different factors present in each of the elementary schools.

The reason this information is important relates back to the conceptual framework used in this study, called Sense-making. According to the Sense-making theory, individuals will draw upon prior knowledge and experiences, personal values and beliefs, and the information they are given about their current situation to make sense out of their lives. In this scenario, teachers in the Bergling School Division are taking their prior knowledge and experiences, the information they have about the school and students in which they teach, and the physical education curriculum, and applying that to their teaching practices.

Teachers report knowing very little about the regulation for elementary physical education in their school division. In contrast, they are reporting that the regulation for physical education in their school division impacts curriculum implementation. How can so many teachers not know much or anything about the regulation, yet the majority of them state that the regulation impacts how they deliver curriculum? Moreover, the teachers overwhelmingly report they are using the prescribed physical education curriculum to teach their lessons. How is it that they are adhering to the prescribed curriculum when they are saying the regulation for physical education impacts the way the curriculum is delivered? One would assume that teachers are trying to use the curriculum because they want students to have a quality physical education class. However, it appears that some Sense-making is taking place. For example, when asked in an open-ended question how and why the regulations for physical education in the Bergling School Division influence the way they implement the curriculum, teachers explained what they do to make it work for their students. One teacher wrote,

> We advocate and push to see students two times per week. We even come up with alternative schedules. We try to implement the program [curriculum] for a two time per week schedule and select out the main points if the students only come once a week.

Another teacher wrote,

> Our school is very large. Therefore, grades K-3 receive physical education twice per week for thirty minutes and grade 4 receives physical education twice per week for forty minutes. We see grades 5-6 twice per week for forty-five minutes. In grades K-3, we feel it necessary to condense physical activity in order to properly explain and demonstrate new skills.

A third teacher stated,

> I have taken a different path this year and am trying a new schedule where kids get a specials block for forty-five minutes Tuesday thru Friday. Everyday (sic) the kids get twenty-two minutes of music and physical education. We use the one-minute for transition. The music room is next to the gym.

The findings from this study may be useful for elementary physical education teachers in that it may help them recognize the importance of educating themselves on the regulations and policies that guide their teaching practice. In addition, local, state, and federal policy makers may find it useful to know the most prevalent obstacles teachers face when trying to implement a quality physical education program to meet their own mandates.

APPENDIX A. ELEMENTARY PHYSICAL EDUCATION TEACHER SURVEY

Part 1: Potential Factors to Curriculum Implementation
Instructions: *Please select your* ***level of agreement for each of the potential factors*** *for implementing the elementary school physical education curriculum in the school where you teach.*

1. Lack of support from administration

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

2. Insufficient space

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

3. Insufficient equipment

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

4. Lack of financial support

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

5. Low level of priority because of other academic subjects

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

6. Not enough time with students

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

7. Teaching philosophy differs from colleague

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

8. Additional duties

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

9. Inability to assess students properly

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

10. Curriculum does not meet the needs of the students

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

11. Ineffective school policies

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

12. Integrate other subject areas into physical education class

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

13. Large class size

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

14. Student's lack of interest in physical education

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

15. Lack of parent support for physical education

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

Part 2: Teacher Demographics, School Setting, and Perception of Regulations for Physical Education

Instructions: *Please respond to all items. If you do not know how to respond please leave the item blank and move to the next one.*

16. Have you taught elementary physical education for more than 10 consecutive years?

a. Yes
b. No

17. Did you teach another subject before teaching elementary physical education?

a. Yes
b. No

18. How many years have you taught physical education at your current school?

a. 1-5 (years)
b. 6-10 (years)
c. 11-15 (years)
d. over 15 years

19. Please select the last degree you received from the list.

a. Bachelor's degree
b. Master's degree
c. Doctoral degree

20. Approximately, how many students attend your school?

a. 100-300
b. 301-600
c. 601-900
d. more than 900

21. Which of the following describes you school's location best?

a. affluent
b. middle class
c. poor

22. Please estimate the percentage of students who attend your school that come from each of these ethnicities.

White ____
African American ____
Asian ____
Hispanic ____
Other ____

23. How many days per week do students have physical education at your school?

a. 1 day per week
b. 2 days per week
c. 3 days per week
d. Other (please explain) _____

24. Please identify the length of one class period (in minutes) for each of the grade levels.

a. K _____ minutes
b. 1st grade _____ minutes
c. 2nd grade _____ minutes
d. 3rd grade _____ minutes
e. 4th grade_____ minutes
f. 5th grade _____ minutes
g. 6th grade_____ minutes

25. Please write any duties you do for the school besides teaching elementary physical education.

26. On average, how much time is allotted in your teaching schedule to plan for instruction per day?

Less than 30 minutes per day ___
Less than 60 minutes per day ___
Between 60 and 90 minutes per day ___
Other (please specify) ___

27. Do you use the school division's program of studies for physical education to plan your physical education lessons?

a. Always
b. Often
c. Seldom
d. Never

28. If you responded "seldom" or "never" to item 27, please explain why you choose to use resources other than the school division program of studies to plan physical education lessons.

29. Do you team teach with another physical education teacher?

___ Yes
___ No

30. Describe what you know about the regulation in your school division that outlines how special subjects, such as physical education, are to be implemented in elementary schools.

31. Do you perceive the contents of the policy and regulation for physical education in your school division impact the way you implement the elementary physical education curriculum?

a. Yes
b. No

32. If you responded yes to item 31, please explain how and why the regulation influences the way you implement the elementary physical education curriculum.

APPENDIX B. PILOT: ELEMENTARY PHYSICAL EDUCATION TEACHER SURVEY FEEDBACK FORM

Name:
Contact:

Pilot: Elementary Physical Education Teacher Survey Feedback Form

Ease of Use:

1. True/False The survey was easy to access.

If you answered false to question 1, please explain why?

_____

2. True/False Survey instructions were clear and easy to follow.

If you answered false to question 2, please explain why?

_____

Ordering and Content of Questions:

2. In part 1 of the survey, please provide any suggestions for the order of the 14 items.

_____

3. In part 1 of the survey, are there any factors you would remove, add, or change the wording? If so, please explain.

_____

4. In part 2 of the survey, please provide any suggestions for the order of the 18 items.

_____

5. In part 2 of the survey, are there any items that you would remove, add, or change the wording? If so, please explain.

_____

Visual Layout:

6. Please provide any suggestions you have about the layout of the survey items.

_____

Anonymity:

7. True/False Teachers' identities were protected.

If you answered false, please explain why.

_____

8. In the table below, please place the item number under the research question it corresponds to best.

RESEARCH QUESTION	ITEM #
To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum?	
To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?	
As a result, how are elementary physical education teachers implementing curriculum in their schools?	
To what extent do specified teacher demographics account for differences in elementary teachers' use of the elementary physical education curriculum?	
To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?	

APPENDIX C. CONSENT TO PARTICIPATE IN THE ELEMENTARY PHYSICAL EDUCATION TEACHER SURVEY

Name of Study:

The Impact of Policy on Practice in Elementary

Physical Education in the Bergling School Division in Virginia

INFORMED CONSENT FORM

Research Procedures

The research is being conducted to explore elementary physical education teachers' perceptions of the policies guiding and factors to implementing the physical education curriculum in their respective schools. If you agree to participate, you have two weeks to complete the survey and submit online through Survey Monkey. The survey should take participants 30 minutes or less to complete.

Risks

There are no foreseeable risks for participating in this research.

Benefits

There are no benefits to you as a participant other than to further research in the area of elementary physical education and policy.

Confidentiality

The data in this study will be confidential. Your identity is protected, as there is no requirement to write your name or the name of the school in which you teach.

Participation

Your participation is voluntary. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

Contact

This research is being conducted by Dr. Penelope Earley, professor in the Center for Education Policy at George Mason University. She may be reached at 703-xxx-xxxx for questions or to report research-related problems. You may contact the George Mason University Office of Research Integrity & Assurance at 703-xxx-xxxx if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research.

Consent

Please click on the button next to "Agree" if you agree to the terms outlined in this consent form before proceeding.

I have read this form and agree to participate in this study. __ Agree

APPENDIX D. METHODS AND QUESTIONS MATRIX

Research Questions:

- To what extent do elementary physical education teachers in the Bergling School Division perceive that selected state and local policies and regulations pertaining to physical education impact their implementation of the curriculum?
- To what extent do elementary physical education teachers in the Bergling School Division perceive selected factors impact curriculum implementation?
- As a result, how are elementary physical education teachers implementing curriculum in their schools?
- To what extent do specified teacher demographics account for differences in elementary teachers' use of the physical education the curriculum?
- To what extent does school setting account for differences in elementary teachers' use of the elementary physical education curriculum?

Item #	Type	Content	Analysis	Rationale
16	Yes/No	Have you taught elementary physical education for more than 10 years?	No test	To compare the mean and standard deviations of both groups
17	Yes/No	Did you teach another subject before teaching elementary physical education?	No test	To compare the mean and standard deviations of both groups
18	Multiple choice	How many years have you taught physical education at your current school?	Chi-square test	To form groups based on number of years of teaching in their current schools and calculate means for each age range.
19	Multiple choice	Please select the last degree you received from the list.	Chi-square test	To form groups based on last degree earned and determine a mean for each group.
20	Multiple choice	Approximately, how many students attend your school?	Chi-square test	To form groups based on how many students attend the school and determine a mean for each group.
21	Multiple choice	Which of the following describes your school's location best?	No test	
22	Fill in the blank	Please estimate the percentage of students who attend your school that come from each of these ethnicities.	No test	
23	Multiple choice (with an "other" option)	How many days per week are students scheduled to have physical education class at your school?	Chi-square test	To form groups based on the number of days per week students have physical education and determine a mean for each group.
24	Fill in the Blank	Please identify the length of one class period (in minutes) for each of the grade levels.	Open coding, mean, standard deviation	To put like responses together in groups. Then, determine the mean number of minutes for each group across all surveys.
25	Open ended	Please identify any duties you do for the school besides teaching elementary physical education.	Open coding	To find emergent themes across surveys.
26	Multiple choice	On average, how much time is allotted in your teaching schedule to plan for instruction?	Mean, standard deviation	
27	Multiple choice	Do you use the school division program of studies for physical education to plan your lessons?	Blocking variable	To form groups based on based on the responses (always, often, seldom, never) and determine means for each.
28	Open ended	If you responded "seldom" or "never" to item 27, please explain why you choose to use resources other than the school division program of studies to plan physical education lessons.	Open coding	To find emergent themes across surveys.

Item #	Type	Content	Analysis	Rationale
29	Yes/No	Do you team teach with another physical education teacher?	Blocking variable	To compare the mean and standard deviations of both groups
30	Open ended	Describe what you know about the regulation in your school division that outlines how special subjects are to be implemented in elementary schools.	Open coding	To find emergent themes across surveys.
31	Yes/No	Do you perceive the regulation for physical education in your school division influences the way you implement the elementary physical education curriculum?	*t*-test blocking variable	To compare the mean and standard deviations of both groups
32	Open ended	If you responded yes to item 31, please explain how and why the regulation influences the way you implement the elementary physical education curriculum.	Open coding	To find emergent themes across surveys.

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BIOGRAPHY

Kimberly Diane Spivack was born and raised in Baltimore, Maryland. She attended the University of Maryland at College Park (UMCP). She received her Bachelor of Science in Kinesiology in 2001 and began teaching in Fairfax County Public Schools (FCPS) in Fairfax Virginia in 2001. She became the curriculum specialist for the FCPS Health and Physical Education Department in 2007. She went on to receive her Master of Education Leadership and Supervision from George Mason University in 2007.