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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

PHYSICAL EDUCATION IN COLORADO: STATUS
AND STAKEHOLDERS' PERCEPTIONS

A Dissertation Submitted in Partial Fulfillment of
the Requirements for the Degree of
Doctor of Philosophy

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College of Natural and Health Sciences
School of Sport and Exercise Science
Sport Pedagogy

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This Dissertation by: Xiaoping Fan

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ABSTRACT

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This dissertation includes two studies, aiming to explore the status of physical education and stakeholders' perceptions of physical education in Colorado. In study one, using the PE for All Colorado model policy as a guiding framework, the purpose of this study was to explore the status of physical education in Colorado. Research questions included: (a) what is the status of physical education in Colorado based on the PE for All model policy's recommendations? and (b) what are the facilitators and barriers to implementing physical education in schools? A sequential explanatory mixed method design was utilized in this study consisting of two phases: the administration of a survey (Phase 1); and a semi-structured interview (Phase 2; Creswell, 2009). Participants in this study were 201 physical education teachers ($n = 98$ elementary schools, $n = 95$ secondary schools, and $n = 8$ K-12 schools) from urban ($n = 122$), suburban ($n = 54$), and rural ($n = 25$) areas in Phase 1, and 12 teachers ($n = 5$ female and $n = 7$ male) in Phase 2. The quantitative survey data were analyzed using descriptive statistics through SPSS. Qualitative survey data (i.e., the open-ended responses) and teachers' responses to interview questions were analyzed with open and axial coding approach, and ultimately, the survey and interview data were combined to interpret the status of physical education. Results are presented in two sections: the status of physical education and the facilitators and barriers to its implementation. Most physical education programs met the recommendations for most

components: assessment (90.0%), school funding (71.1%), etc. Some programs only partially met the following components: district funding (57.2%), waivers for physical education (Level 1), etc. Six facilitators and seven barriers related to the implementation of physical education at schools were identified. Facilitators include: requirements for physical education, adequate facilities and equipment in secondary schools, administrator support, parent support, access to community resources, and professional development for physical education teachers. Barriers include: negative perceptions of physical education, marginalization of physical education, limited instruction time in elementary, large class sizes in secondary, lack of attention to policy, limited funding, and lack of a rubric for teacher evaluation. In conclusion, Colorado is a local-control state, so physical education programs in Colorado schools vary widely. The findings of this study have the potential to act as a reference or guidepost for efforts to improve physical education in Colorado, creating a baseline from which to work. The state, schools, and physical education teachers should consider the PE for All model policy when implementing physical education and should advocate for a quality program.

Study two was to explore the perceptions of students, parents, classroom teachers, and administrators on physical education at school. The social ecological model served as the theoretical framework for this study, incorporating environmental considerations for the development of physical education within schools (Bronfenbrenner, 1992). This study employed an interpretive qualitative research design to explore stakeholders' perceptions on "typical" physical education which focused on what physical education was like prior to the global pandemic that started in March 2020 (Merriam & Tisdell, 2016). Participants ($N = 28$) in this study included students ($n = 8$), parents ($n = 8$), classroom teachers ($n = 9$), principals ($n = 2$) and one assistant principal. Data sources included interviews (i.e., focus group interviews or

individual interviews) and artifacts consisting of physical education documents (i.e., class schedule, curriculum documents, syllabi, budget plan, etc.), policy documents (e.g., district policy in physical education), the PE for All Colorado physical education model policy (Colorado Health Foundation, 2016), and the Colorado state profile of physical education (SHAPE America, 2016). To understand each group of stakeholders' insights on physical education, the researcher employed open and axial coding to analyze the interview data by groups and used document analysis for artifacts. The results of this study are presented based on the perceptions of four groups of stakeholders--students, parents, classroom teachers, and administrators--on physical education at their/their children's school. Their perceptions included four categories: the purpose of physical education, the impact of physical education on children, the learning environment, and suggestions to improve physical education. Understanding stakeholders' insights has the potential to improve the implementation of physical education when schools and physical education teachers are designing physical education programs.

Overall, this dissertation provides the current state of physical education and stakeholders' insights of physical education in Colorado. The results of the studies provide a baseline to assist policy makers in building feasible legislation to implement physical education, have the potential to find creative ways to tackle the challenges of implementing and improving physical education, and offer pedagogical and curriculum implications that schools and physical education teachers can take into consideration stakeholders' perceptions of physical education.

DEDICATION

This dissertation is dedicated to my parents. I love you so much.

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CHAPTER I

INTRODUCTION

Physical education programs contribute to students' health-related fitness, physical competence, cognitive understanding, and positive attitudes toward physical activity (Society of Health and Physical Educators [SHAPE] America, 2014). Physical education provides students with the knowledge, physical skills, abilities, and confidence necessary to be physically active across their lifetimes (Houston & Kulinna, 2014). Research has been conducted to examine the effects of physical education on students' holistic development, indicating that physical education improves students' manipulative skill competency (Chen, Zhu, et al., 2016), contributes to physical fitness (Starc & Strel, 2012), promotes physical activity (Chen et al., 2014), battles obesity (Bott & Mitchell, 2015), leads to positive psychology (Cherubini, 2009), improves academic outcomes (Sallis et al., 1999; Smith & Lounsbery, 2009), and develops social skills (Perlman, 2014; Ruiz et al., 2010). Scholars have also highlighted the effectiveness of quality physical education programs on children's health and physically active lifestyles (Cawley et al., 2013; Clocksin et al., 2009; Cox et al., 2008; Dale et al., 1998). Therefore, implementing quality physical education has the potential to promote active and healthy lifestyles amongst children (Chen, Mason, et al., 2016; Petot et al., 2012; Starc & Strel, 2012).

Given the benefits of physical education on children's development, schools should enhance the implementation of their physical education programs. Understanding the purpose of

physical education is the foundation of establishing quality physical education programs. The global definition of physical education is “the planned, progressive, inclusive learning experience that forms part of the curriculum in early years, primary and secondary education” (United Nations Education, Scientific, and Cultural Organization [UNESCO], 2015, p. 9). Tailored physical education programs support students in developing the physical, social, and emotional skills that allow them to become self-confident and socially responsible citizens (UNESCO, 2015). To facilitate children’s attainment of physical literacy, UNESCO (2015) identifies five benchmarks for physical education: curriculum, cross curricular/external links, learners, assessment, and research. Similarly, the national physical education standards state that a physical education program includes learning opportunities, appropriate instruction, meaningful and challenging content, and assessment of students and programs (SHAPE America, 2014). Policy and environment were included as additional components of physical education in a more recent guidance document (SHAPE America, 2015a). While a physical education program should include those four components (i.e., policy and environment, curriculum, instruction, and assessment), not all states meet all the recommendations.

The state of Colorado does not require schools to provide physical education physical education, placing it in a small minority of states across the nation (SHAPE America, 2016). According to the 2016 Shape of the Nation Report, 39 states require physical education in elementary school, 37 in middle school, and 44 in high school. Colorado is one of three states that do not require physical education at any grade level (SHAPE America, 2016). As explored through anecdotal evidence and conversations with school district leadership, instructional time for physical education in Colorado does not meet recommendations (150 minutes/week in elementary school or 225 minutes/week in secondary school; Colorado Health Foundation,

2016). To increase and improve school physical education in Colorado, a model policy for physical education--PE for All--has been developed (Colorado Health Foundation, 2016). This model physical education policy aims to increase all children's health and wellbeing by creating school district policy recommendations for quality physical education programs (Colorado Health Foundation, 2016). These recommendations establish a standard describing what a quality physical education program should include (e.g., standards-based curriculum, licensed instructor, and no waivers for physical education). However, there are no available literature that contain evidence and data about the current state of physical education programs in Colorado. Using a comprehensive perspective, this dissertation attempted to bridge the gap between what is currently happening in physical education and the PE for All Colorado model policy. Overall, this dissertation aimed to explore the current state of physical education in Colorado by conducting two studies to explore the implementation of physical education. Study one explored the status of physical education in Colorado through the perspectives and understanding of physical education teachers, and study two explored the perceptions of students, parents, classroom teachers, and administrators on physical education in Colorado.

The purpose of study one was to explore the status of physical education in Colorado. Two research questions were explored: (a) what is the status of physical education in Colorado based on the PE for All model policy's recommendations? and (b) what are the facilitators and barriers to implement physical education in schools? A mixed method approach was utilized to explore the status of physical education in Colorado (Creswell, 2009). Participants included physical education teachers from various schools and school districts across Colorado. Data were collected in two phases: Phase 1 included the administration of a survey (i.e., the Status of Physical Education in Colorado Survey) and Phase 2 employed semi-structured interviews with

physical education teachers. The Statistical Product and Service Solutions (SPSS) software was utilized to analyze survey data, and open and axial coding was used to analyze the open-end responses in survey and the responses to interview questions. The validity of the Status of Physical Education in Colorado Survey was established by expert review and survey pilot (Tavakol & Dennick, 2011; Thorn & Deitz, 1989). The trustworthiness of the semi-structured interviews was established using several separate techniques, including data triangulation, use of a researcher journal, peer debriefing, and an audit trail (Merriam, 2015).

The purpose of study two was to explore the perceptions of students, parents, classroom teachers, and administrators on physical education in Colorado. The social ecological model served as the theoretical framework for the study, incorporating environmental considerations for the development of physical education programs within schools. Following the social ecological model, this study employed an interpretive qualitative research design to explore stakeholders' perceptions of physical education in Colorado (Merriam & Tisdell, 2016). The participants in this study included students, parents, classroom teachers, and administrators from three schools in Colorado. Data sources included interviews (i.e., focus group interviews and individual interviews) and artifacts (i.e., physical education documents, policy documents, the PE for All Colorado physical education model policy [Colorado Health Foundation, 2016], and the Colorado state profile of physical education in the 2016 Shape of the Nation report [SHAPE America, 2016]). The data were analyzed inductively using open and axial coding and document analysis (Corbin & Strauss, 2008), and trustworthiness was established using data triangulation, use of a researcher journal, peer debriefing, and thick description (Merriam & Tisdell, 2016).

This dissertation is significant for several reasons. First, this dissertation filled a research gap by exploring the current state of physical education in Colorado, which can provide a

baseline to assist policy makers in building feasible legislation to implement physical education and tracking change over time. Second, this dissertation can inform practice for improvement that schools can use these data to find creative ways to tackle the challenges of implementing and improving physical education for children in their schools. Third, this dissertation has the potential to offer pedagogical and curriculum implications that schools and physical education teachers can take into consideration stakeholders' perceptions of physical education when designing physical education programs.

CHAPTER II

REVIEW OF LITERATURE

Schools are the ideal setting for promotion of physical activity among children, and physical education is the essential vehicle to achieve this goal (Van Sluijs et al., 2007). Quality physical education programs have the potential to lead children towards lifelong engagement in physical activity and sport (Houston & Kulinna, 2014; Peterson, 2013). The promotion of physical education is viewed as one of the primary strategies for improving children's health and physical activity levels (Gabbard, 2001). This review of literature will address aspects of physical education and will be presented in four sections, including basic descriptions of physical education, overview of a model physical education policy, stakeholders' perceptions of physical education, and relevant theoretical frameworks.

Physical Education

Definition and Components of Physical Education

The nature and scope of physical education are defined according to the specific context and time of its use. Thus, the components of physical education may vary based on current societal needs and on definitions provided by different countries, organizations, or scholars. According to UNESCO (2015), physical education is planned, progressive, active, inclusive, peer-led learning for children in kindergarten, elementary and secondary schools. There are five benchmarks of physical education, including curriculum, cross curricular/external links, learners, assessment, and research (UNESCO, 2015). The goal of physical education is internationally

established according to national contexts and needs. Many European countries, such as Ireland, Switzerland and Finland, use holistic physical education that combines health, wellness, and physical activity. For instance, the purpose of physical education in Finland is to influence the well-being of children by promoting their physical, social, emotional, and intellectual development (Lynch, 2019). Similarly, in Australia, the intention of physical education is to enhance the health and wellbeing of children (Australian Curriculum, 2019). In England, physical education programs aim to inspire children to succeed in competitive sport and other physically demanding activities so that they become physically confident, which supports their health and fitness (Griggs, 2012). In New Zealand, the focus of physical education is the well-being of the children themselves and of the society by learning in health-related and movement contexts (New Zealand Ministry of Education, 2014). In Canada, each province determines its physical education curriculum, and the general aim is to acquire knowledge, skills, and attitudes for a healthy, active lifestyle through physical activity (Kilborn et al., 2016). China shifted the focus of health, wellbeing, and physical education away from sports performance-oriented physical education curriculum. The current physical education program reform in China emphasizes the promotion of physical education in schools to improve students' physical health (The State Council, 2016).

In the United States (U.S.), the goal of physical education is to develop individuals' competence and confidence to a lifetime of healthful physical activity (SHAPE America, 2014). In 1992, the National Association for Sport and Physical Education (NASPE) published the Outcomes of Quality Physical Education Programs. In this document, NASPE provides answers to the question, "what should students know and be able to do" as a result of their participation in physical education. This document identifies the components of quality physical education as

planning, instruction, assessment, and communication. In 1995, NASPE published the first edition of the national physical education standards. The accompanying document outlined four components of a physical education curriculum: (a) mastering basic skills and understanding motor skills, (b) applying cognitive concepts about motor skill and physical activity, (c) improving social and cooperative skills, and (d) using fitness education and assessment for students' physical health and wellbeing. Moving into the 21st century, the components of physical education were revised by NASPE (2004) to include opportunities to learn, meaningful content, and appropriate instruction.

According to newest edition of the national physical education standards, the SHAPE America (2014) describes the components of a physical education curriculum to include: (a) opportunities to learn, (b) meaningful content, (c) appropriate instruction, and (d) student and program assessment. More specifically, opportunities to learn relates to the requirement for physical education, instruction time, class size, and the presence of a qualified physical education specialist. Meaningful content includes the use of a standards-based curriculum, effective instruction, fitness education and assessment to improve physical wellbeing, development of cognitive concepts, and provision of opportunities for learning social skills. Appropriate instruction entails being inclusive, maximizing practice opportunities, designing lessons for student learning, providing out of school assignments, not assigning or withholding physical activity as punishment, and conducting regular assessment. Lastly, student and program assessment defines assessment as an ongoing, vital part of a physical education program, incorporating formative and summative assessments, student assessments aligned with the standards and curriculum, measurements of program elements, and periodic evaluations of the overall effectiveness of the physical education program. The most recent reference to the

essential components of physical education was released in a guidance document, and includes policy and environment, curriculum, appropriate instruction, and student assessment (SHAPE America, 2015b). The main difference between the national physical education standards reference (SHAPE America, 2014) and the recent guidance document (SHAPE America, 2015a) is that the latter includes policy as an additional component. The considerations for policy include requiring that physical activity is not assigned or withheld as punishment and that students are not allowed exemptions or waivers from physical education class time or credit requirements.

Other organizations have also provided definitions of physical education. The Centers for Disease Control and Prevention (CDC, 2015), for example includes the same components of physical education as defined in the SHAPE America guidance document. The American Heart Association and American Stroke Association (2012) state that a physical education program helps children enhance physical, mental, and social/emotional development to understand, improve, and maintain physical well-being. Essential components include: policy and environment, standard-based curriculum, 50% moderate-vigorous physical activity (MVPA), and student assessment.

Aside from the definitions of physical education mentioned above, many scholars describe their understanding of the components of physical education largely based upon their philosophical beliefs. Graham et al. (2013) described the characteristics of a physical education program in Children Moving, including instruction time, class size, a sequential and developmental curriculum, MVPA, practice opportunities, success rates, positive emotional environments, teacher backgrounds, realistic expectations, adequate equipment and facilities, enjoyability, and three learning domains. Policy and assessment are not listed here, as their

components fall under learning environment, curriculum, and instruction. Within the Dynamic Physical Education curriculum, Pangrazi and Beighle (2020) propose the following as the essential components of a physical education program: (a) student-centered, (b) making physical activity, physical fitness, and motor-skills development the core of the program, and (c) teaching management skills and self-discipline. Using a public health approach with Health Optimizing Physical Education (HOPE) model, Metzler et al. (2013) indicate the main goal of physical education is to help students acquire knowledge and skills for lifelong engagement in physical activity for optimal health benefits. In addition, Lynch (2019) offers a unique understanding of physical education, suggesting that the components are (a) curriculum, teaching, and learning, (b) whole-child development, (c) school implementation, and (d) community. Curriculum, teaching, and learning is analogous to curriculum, instruction, and learning environment in the national physical education standards (SHAPE America, 2014). Whole-child development requires teachers to consistently work towards the bigger picture--the holistic health and physical education of the child--which represents the learning objectives of the three domains. The unique points of this definition are the importance of school implementation and community. School implementation emphasizes the use of physical education throughout the whole school and the development of a strengths-based partnership to optimize teaching and learning resources and opportunities in the community (Lynch, 2019). Lynch (2019) has shifted the philosophical view using a holistic discourse in physical education and defines physical education on a macro level that extends from the school level to the community, which aligns with the Whole School, Whole Community, Whole Child model. Overall, there is some consensus within the field, establishing that policy and environment, curriculum, instruction, assessment, and community are the key components of a physical education program.

The definition of physical education has changed over time and in response to curricular reform. The development of a definition and the establishment of key components of physical education has been influenced by social environment. Understanding the definition of physical education can help people understand its nature and navigate the ways towards the goals. The nature of modern physical education in the U.S. has shifted, moving from a focus on physical fitness in the first half of the twentieth century, to more performance-related considerations following World War II, to health and well-being most recently (Mechikoff & Estes, 2019). The SHAPE America (2014) recently adjusted the national physical education standards according to the current needs of students, and now has a more central focus on the health and social emotional learning of children.

The Benefits of Physical Education

Physical education acts as the foundation for lifelong engagement in physical activity and sport (UNESCO, 2015). Effective physical education gives students the knowledge, physical skills, and confidence to be physically active across their lifetime (CDC, 2015). As documented in the SHAPE America (2014) national standards, a quality physical education program contributes to students' health-related fitness, physical competence, cognitive understanding, and positive attitudes about physical activity so that they can adopt healthy and physically active lifestyles. In addition, a quality physical education program improves students' mental alertness, academic performance, readiness and enthusiasm for learning (SHAPE America, 2014). Existing research indicates physical education has the potential to improve students' movement skills, physical competence, cognitive development, psychological development, and social health (Bailey et al., 2009). Generally, the benefits of physical education include improving physical activity, physical health, physical fitness, motor skills, cognitive skills, social and emotional

skills, and academic achievement. The following sections will discuss research associated with each of these established benefits.

Physical Activity

Quality physical education contributes to increasing children's engagement in physical activity (Le Masurier & Corbin, 2006). In other words, children's learning experiences in physical education have positive, immediate, and long-term impacts on their engagement in physical activity (Cox et al., 2008; Houston & Kulinna, 2014; McKenzie & Lounsbery, 2014). Positive experience in physical education class increases student physical activity level (Cox et al., 2008; Madsen et al., 2009). When incorporating health within physical education, students are more likely to participate in physical activity (Clocksin et al., 2009). For further benefit, more physical education in high school leads to higher levels of physical activity when students become adults (Peterson, 2013). Physical education provides students with skills, knowledge, and confidence to be physically active across their lifespan (Houston & Kulinna, 2014; SHAPE America, 2014). For instance, students acquire multiple motor skills that enable them to participate in activities and sports outside of school (H. G. Williams et al., 2008; Wrotniak et al., 2006). Additionally, there is a strong relationship between physical activity and substance use disorder, in that physical activity could be a protective factor against its development (Brellenthin & Lee, 2018). For instance, students participating in more physical activity have a lower risk of smoking and drug use (Lebron et al., 2017).

Physical Health

Physical education has a positive effect on promoting children's physical health and reducing the probability of obesity (Le Masurier & Corbin, 2006). Existing studies have indicated daily physical education in school decreases students' body mass index (BMI), reduces

the prevalence of obesity in children, and has the potential to decrease a student's odds of being an overweight adult (Bott & Mitchell, 2015; Datar & Sturm, 2004; Erfle & Gamble, 2015; Mensschik et al., 2008). The effect of physical education may be different on girls and boys, and the health outcomes are more significant for girls (Sallis et al., 1997). Further, physical education programs contribute to enhancing children's healthy behaviors such as participating in more physical activity, eating more fruit, and watching less television (Tassitano et al., 2010).

Physical Fitness

Physical education participation is associated with students' health-related physical fitness which is a key indicator of health outcomes (Chen, Zhu, et al., 2016; Coledam & Ferraiol, 2017; Ortega et al., 2008; Starc & Strel, 2012). The five components of health-related physical fitness include body composition, cardiorespiratory fitness, flexibility, muscular endurance, and muscular strength. Research show physical education can contribute to improving students' body composition, aerobic capability, muscular endurance and strength, and flexibility (Chen, Mason, et al., 2016; Reed et al., 2013). Further, the Texas Education Agency indicates that physical fitness is associated with student behavior in school (Conde, 2011; Welk et al., 2010). For example, students with higher aerobic capacity are absent fewer days on average than students with lower aerobic capability, and those who are more physically fit are less likely to have disciplinary problems at school (Conde, 2011; Healthy Kansas Schools, 2014).

Motor Skills

The SHAPE America (2014) national standards require teachers to develop student competency in a variety of motor skills and movement patterns. Acquiring motor skills is important for children because proficient motor skills result in increases to confidence in sport and recreational activities, while physical education leads to students' fundamental motor skills

development (Andruschko, 2013). Students with proficient object control skills are more likely to become physically active later in their life as they can transfer the skills learned in physical education class to their activities outside of school (Barnett et al., 2009). Existing research has indicated physical education improves students' manipulative skill competency, such as throwing, kicking, and catching, mainly in elementary students (Barnett, 2009; Chen, Zhu, et al., 2016; McKenzie et al., 1998). While differences in motor skills exist between boys and girls, quality physical education decreases these differences (Ericsson, 2011). Daily physical education, taught by qualified physical education specialists, and using well-designed instructional methods have positively influenced the development of student motor skills (Ericsson & Karlsson, 2012; Fotrousi et al., 2012; Morgan et al., 2013).

Social and Emotional Skills

Two of the national physical education standards require teachers to develop students who demonstrate responsible personal and social behaviors and that value physical activity (SHAPE America, 2014). Physical education classes provide students opportunities to develop social skills, appreciation for physical activity, and emotional skills. Students transfer those social and emotional skills they've learned in physical education into their daily lives (Sandford et al., 2006). First, a physical education program gives students opportunity to learn and practice their social skills in a physically active setting. Physical education engenders positive social behaviors such as cooperation, personal responsibility, empathy, caring, and decision-making skills (Azzarito & Ennis, 2003; Bailey et al., 2009; Ruiz et al., 2010). Students' social skills are developed in a cooperative and caring learning environment where students are able to work on communication, leadership, and problem-solving skills, which provides support for students' need for relatedness among their peers (Perlman, 2014). Notably, those social connections and

interactions can lead to students choosing exercise-based extra-curricular activities outside of school (Wallhead et al., 2012). Second, meaningful participation in physical education can lead to student appreciation for the importance of lifelong physical activity for health (Graham et al., 2013). Lastly, physical education can play an essential role in developing student emotional well-being, including self-efficacy, self-esteem, and self-concept (Goni & Zulaika, 2000; Lodewyk et al., 2009; Schmidt et al., 2013).

Cognitive Skills

It has been stated that physical education benefits children's attention and memory (Budde et al., 2008; Ericsson, 2008). Physical education impacts student attention and impulse control through enhancing motor skills and coordination exercise and students with good motor skills have good attention while students with significant difficulties in attention have similar deficiencies in motor skills (Ericsson, 2008). Engaging in coordination activities thus improves students' attention as well (Budde et al., 2008).

Academic Achievement

There have been many research studies conducted on the effects of physical education on academic outcomes (e.g., Coe et al., 2006; Ericsson, 2008; Milosis & Papaioannou, 2007; SHAPE America, 2018). Physical education impacts students' academic achievement when instruction time for physical education is increased, high intensity of physical activity in the class is provided, and trained physical educators are required (Coe et al., 2006; Ericsson, 2008; McKenzie et al., 1996). Increasing the amount of physical education instruction time has a positive relationship with academic achievement (Ericsson, 2008). For example, having daily physical education is more beneficial than two sessions per week (Ericsson, 2008). Daily physical education can produce higher scores in math, English and language arts, reading, and

writing (S. A. Carlson et al., 2008; Ericsson, 2008). Further, vigorous physical activity in the class contributes to improving student academic outcomes (Coe et al., 2006). Employing trained physical educators increases academic achievement when they emphasize the opportunity for active participation, promote the appropriate amount of MVPA, and maximize the use of active class time (McKenzie et al., 1996). For example, students in the physical education classes taught by specially trained teachers have higher world language grades (Milosis & Papaioannou, 2007).

In this dissertation, physical education teachers, students, parents, classroom teachers, and administrators addressed their understandings of the purpose of physical education and its impact on children and youth.

Physical Education Implementation Barriers

While physical education is critical for children's health and development, a variety of threats challenge its implementation. On behalf of the International Council for Sports Science and Physical Education, Hardman and Marshall (2001) reported the status of physical education in schools worldwide through an international survey. The status report highlights decreased time dedicated to physical education in the curriculum, inadequate financial, material, and personnel resources, low subject status and esteem, and marginalization by school authorities. Physical education is therefore facing a comprehensive, international threat to its implementation. The majority of obstacles to implementing physical education are lack of funding, neglected assessment, decreased instruction time, large class sizes, inadequate equipment and facilities, and insufficient number of specialists (Barroso et al., 2005).

Lack of Funding

Lack of funding to support physical education is considered a major barrier and threat to implementation. When considering funding for physical education programs in school districts and schools, 58.3% of states receive general education funding, and only 29.2% receive school district appropriations (SHAPE America, 2016). The lack of funding leads to inadequate equipment for classes, which makes class management and effective instruction more difficult. Additionally, lack of funding makes it difficult for teachers to attend professional conferences in physical education which contributes to their professional growth and therefore impacts students' access to quality instruction (Morgan & Hansen, 2008a).

Neglected Assessment

Assessment helps principals, teachers, students, and parents measure student learning and program success. However, there is a lack of consistency with respect to the level of assessment that is required within physical education programs in the U.S. Currently, there is little accountability for physical educators, physical education programs, and students to meet the requirements of physical education (SHAPE America, 2016). For instance, only 32.7% of states require student assessments that directly relate to state physical education standards, and approximately 26.5% of states require student physical fitness assessment (SHAPE America, 2016).

Decreased Instruction Time

The Shape of the Nation Report (SHAPE America, 2016) noted that the requirements for, and time dedicated to, physical education have decreased over the past few decades. Only five states offer elementary school students the nationally recommended 150 minutes of physical education per week, and only two provide middle school students with the recommended 225

minutes. Comparing data from 2012, the 2016 Shape of the Nation states that curriculum requirements for taking physical education decreased to 76.5% from 84.3% in elementary and to 72.5% from 80.4% in middle school (SHAPE America, 2016). Part of the reason for decreased instruction time in physical education was the now defunct No Child Left Behind Act that resulted in school districts cutting physical education time to meet mandated testing requirements and results (Graham, 2008; LaFee, 2008).

Large Class Size

The majority of states do not have a required student-teacher ratio for classes (SHAPE America, 2016). Large class size limits students learning opportunities in physical education. Teachers reference large classes as being one of their major obstacles to implementing a quality physical education program because the presence of more students makes class management difficult and can contribute to poor instruction (Morgan & Hansen, 2008a).

Inadequate Equipment and Facilities

The lack of equipment influences management issues and poor classroom behaviors (Morgan & Hansen, 2008a). Inadequate equipment decreases students' participation in physical activity in class and lead to challenges when teachers design the class. Teachers indicate that inadequate physical education facilities severely restrict the quality of their instruction (Rainer et al., 2012).

Insufficient Number of Specialists

Teacher expertise and preparation is a precursor to physical education (Sallis et al., 1997). The Shape of the Nation (SHAPE America, 2016) reported that many physical education programs are not taught by qualified teachers. Instead, schools allow classroom teachers to teach physical education. Prior studies showed that classroom teachers have a low level of teaching

confidence, poor personal experiences in physical education, and little personal interest or enthusiasm in physical education (Morgan & Hansen, 2008a). The research conducted by McKenzie et al. (1998) had indicated that students' manipulative skills were improved by 21% when taught by physical education specialists, and by 19% when by trained classroom teachers, as comparing to 13% for control group taught by untrained classroom teachers.

Participants in this dissertation shared their insights of the facilitators and barriers to the implementation of physical education at their/their child schools. Overall, definition and components of physical education contribute to understanding the structure of physical education in schools. Given its benefits, physical education plays an important role in children's development, and thereby schools should improve access to and implementation of physical education for children's success and health.

Model Physical Education Policy

Obesity is associated with children's health, and the prevention of childhood obesity is imminent. Physical education has the potential to improve student physical activity level and overall health and wellbeing. In order to improve physical education in Colorado, PE for All Colorado model policy provides recommendations for schools and districts, aiming to increase the health and wellbeing of all children by improving physical education programs in schools.

Childhood Obesity and Health

Childhood obesity is a public health crisis which has affected 20% of children and adults in the U.S. (CDC, 2019). The prevalence of obesity increased significantly from 1999-2000 (13.9%) through 2015-2016 (18.5%; Hales et al., 2017). The prevalence of obesity increased with age, from preschool-aged children through school-aged childhood to adolescence. Further, obesity prevalence differed by education and income of the household head among children and

adolescents aged 2-19 years (CDC, 2019). The obesity prevalence is lower among the children of the household head with higher education, while the prevalence by income varies across race (CDC, 2019). Obesity is viewed as a public health crisis as it is correlated with some serious health problems that lead to immediate and future health risks (CDC, 2016a). Obesity during childhood will cause high blood pressure and high cholesterol, type 2 diabetes, breathing problems, joint and musculoskeletal discomfort, and fatty liver disease (Africa et al., 2016; Bacha & Gidding, 2016; Cote et al., 2013; Lloyd et al., 2012). Obese children are more likely to have anxiety and depression, low self-esteem, and social problems (Halfon et al., 2013; Morrison et al., 2015). In addition, obesity in childhood will increase an individual's probability of becoming an obese adult and is directly associated with chronic diseases in adulthood (Bass & Eneli, 2015; Gordon-Larsen et al., 2010).

The Colorado Department of Public Health and Environment (CDPHE, 2017) announced that nearly 25% of children aged 5-14 years in Colorado were overweight or obese in 2016. The percentage of obesity reveals differences between races and ethnicities, sexes, and ages (CDPHE, 2017; Colorado Health Foundation, 2016). There was a significant decrease in obesity among low-income children aged 2-4 from 2012 to 2016, while there was no significant change among high school students from 2013 to 2015 (CDPHE, 2017). Lower income and food insecurity are the two major factors that contribute to childhood obesity, as they lead children to have less opportunities for physical activity and limited access to healthy foods. Colorado's children took a healthy step forward, as the percentage of children with obesity was lower in 2016 (9.1%) than in 2015 (11.6%). Even so, Colorado's children still rank 28th in the nation according to the Colorado Health Report Card (Colorado Health Foundation, 2016). Looking

back at the data across the decade between 2006 and 2015, the prevalence of obesity among children increased from 18.4% in 2007 to 21.5% in 2015 (Colorado Health Foundation, 2016).

Obesity prevention is a complex process, as there are multiple factors that cause obesity (CDC, 2019). The CDC (2019) has announced that state and local organizations should create an environment that promotes children's healthy living behaviors and indicated one of the proposed strategies is to increase physical activity. The CDC recommends children engage in 60 minutes of physical activity every day: 50.8% of children aged 5-14 years met this requirement in Colorado (CDPHE, 2017). Physical activity plays an important role in preventing obesity, reducing risk factors related to obesity, and promoting health in young children (CDC, 2020). For the future benefits, children who are regularly active are more likely to become healthy adults (Piercy et al., 2018). Given the benefits of physical activity on children's health, the Colorado Revised Statute encourages each school district's board of education to adopt its wellness policy (FindLaw, 2020). The wellness policy recommends each board adopt a physical activity policy, mandating an expected number of minutes for physical activity during the school day (FindLaw, 2020). Physical activity is essential for children's health, and physical education is the cornerstone of participation in regular physical activity. Childhood and adolescence are essential periods for cultivating healthy habits and establishing the foundation of lifelong health (Piercy et al., 2018). Children develop competence and confidence in physical education class through learning physical skills, knowledge, and social skills, as well as by valuing the importance of physical activity for health (SHAPE America 2014). In closing, one of the effective strategies to overcome children's health problems is the establishment of physical education in schools (Gabbard, 2001).

Status of Physical Education

The 2016 Shape of the Nation Report (SHAPE America, 2016) indicates that, compared to prior surveys (both 2010 and 2012), states requiring schools to provide physical education in elementary and middle/junior high school slightly decreased. With regard to elementary schools, 39 states require the provision of physical education, 19 of which require a specific number of minutes per week, and only six of which provide 150 minutes or more. With respect to middle/junior high school, 41 have some type of physical education requirement, 15 require a specific number of minutes per week, and only three provide the nationally recommended 225 minutes. For high school, 46 states require physical education, six require a specific number of minutes per week, and no states achieve the recommended 225 minutes of physical education per week. According to this report, 31 states permit schools or school districts allow students to count credit for substitutions of physical education, 15 states permit exemptions from physical education, and 30 states allow waivers for physical education (SHAPE America, 2016).

The 2017 Youth Risk Behavior Surveillance Survey (YRBSS) reveals that 51.7% of students in the nation attended physical education classes on one or more days per week, which was slightly higher than the prevalence in 2015 (53.6%; Kann et al., 2016; Kann et al., 2018). Further, male students' participation (55.9%) was higher than female students' (47.6%; Kann et al., 2018). The prevalence among 9th grade students (72.1%) was higher than 10th grade (55.4%), 11th grade (39.0%), and 12th grade students (39.0%). These results confirm that student participation in physical education decreases with age. In addition, the prevalence of attending physical education class on all five days in an average week increased slightly to 29.9%, as compared to attending one or more days in 2015 (29.8%; Kann et al., 2018).

For physical education curriculum, the percentage of schools with requirements or recommendations to use particular curriculums is low, between 19.3% and 27.7% in elementary,

middle, and high school. The majority of curricula required or recommended by districts were developed with a state education agency (CDC, 2016b). The percentage of schools that use a curriculum analysis tool is 12.5% in elementary school, 14.5% in middle school, and 11.8% in high school (CDC, 2016b).

There is a lack of assessment of students' learning in physical education. Nationwide, the percentage of districts that require schools to administer written assessments of students' knowledge related to physical education is 13.0% in elementary school, 17.8% in middle school, and 21.8% in high school (CDC, 2016b). The percentage of districts requiring schools to assess student skill performance associated with physical education was 24.6% at the elementary school level, 18.7% at the middle school level, and 25.3% at the high school level (CDC, 2016b). These results indicate that assessment of students' cognitive and psychomotor performance increases by school level. Moreover, 44.9% of districts in the nation require schools to submit students' fitness assessment to the state or district for elementary schools, 40.4% for middle schools, and 42.4% for high schools (CDC, 2016b).

The majority of the states require physical education teachers to be state certified or licensed to teach physical education in elementary school (71.4%), middle/junior high school (87.8%), and high school (98.0%; SHAPE America, 2016). There are 31 states allowing classroom teachers to teach elementary physical education classes (SHAPE America, 2016). Most states (42 states) require professional development to maintain or renew teachers' certification or license. Almost two-thirds provide events and funding for physical education teachers' professional development, up from 19.6 % in 2010.

Funding for physical education programs in schools varies across states. There are 28 states that receive general education funding, 14 states receive appropriations from their school

districts, and one state (Colorado) has special appropriations (SHAPE America, 2016). The median funding amount for physical education programs is \$764, the annual funding for over 60% of programs is under \$1,000, and only 15% have funding of \$2,000 or more (National Association for Sport and Physical Education, 2009). Funding is necessary in physical education for expenses associated with equipment, facilities, and teacher professional development (Morgan & Hansen, 2008b).

Physical education in the nation has slight changes in recent years, but there is a lot of space for improvement, including instruction time for physical education, policy encouraging physical education, curriculum, assessment, and funding. Overcoming these challenges has the potential to contribute to the implementation of physical education.

Physical Education in Colorado

There is no requirement for physical education in Colorado, placing it in a small minority of states across the nation. According to the 2016 Shape of the Nation Report (SHAPE America, 2016), 39 states require physical education in elementary school, 37 in middle school, and 44 in high school. Colorado is one of three states that does not mandate elementary, middle/junior high, or high schools to provide physical education (SHAPE America, 2016). As a local-control state, physical education programs in Colorado vary widely, because school districts are able to create their own policies and requirements associated with physical education. Overall, children in the state do not receive adequate time in physical education classes according to anecdotal evidence and conversation within school districts (Colorado Health Foundation, 2016).

Colorado, on the other hand, does require 150 minutes per week for elementary physical activity (Colorado Department of Education [CDE], 2018). The physical activity policies require a specific number of minutes that elementary school children must engage in per month based on

whether the child attends half- or full-day and based on the length of the school week (CDE, 2016) For instance, a minimum of 600 minutes of physical activity per month if the classes at the school meet five days per week and the student attends school for a full day, or a minimum of thirty minutes of physical activity per day if the classes at the school meet fewer than five days per week and the student attends school for a full day (CDE, 2018). Physical activity at school includes: (a) exercise programs, (b) fitness breaks, (c) recess, (d) field trips that include physical activity, (e) classroom activities that include physical activity, and (f) physical education classes (CDE, 2016). Local school boards are required to adopt physical activity policies at the elementary school level (CDE, 2016).

The Colorado Department of Education (CDE, 2019) recently revised and published the new edition of the state's physical education standards for pre-K through grade 12 to meet the needs of Colorado students. The revision of the standards is based on the concepts of physical literacy from SHAPE America and health literacy from the CDC. Colorado's physical education programs are designed to prepare students to be physically literate individuals who demonstrate personal responsibility for their own health and wellness over their lifetimes, and these programs are valued as the foundation for students' competence and confidence in a wide variety of physical activities. The focus of physical education in Colorado has shifted in the last few years; the initial focus was on team sports, athlete success, and teacher-directed lessons, with little attention paid to cognitive learning (CDE, 2019). The current physical education program guidelines provide an inclusive environment for all students to succeed. Ultimately, the standards focus on developing students to be physical active for a lifetime. Four areas were addresses in the standards: (a) movement and competence understanding, (b) physical and personal wellness, (c) social and emotional wellness, and (d) prevention and risk management (CDE, 2019). These

standards address all five national standards, and also include students' healthy behaviors at home, in school, and in the community.

Colorado allows local school districts to make modifications to the physical education program based on its context and situation. Thus, the state standards and grade-level expectations are guiding principles rather than a checklist for physical education programs. Schools need to consider their resources when designing and implementing physical education, such as available funding, geophysical location, infrastructure, and school schedule. Additionally, due to the differences among school districts, Colorado does not have requirements for school districts regarding curricula or teaching methods (SHAPE America, 2016). Instead, each individual school district, school, or teacher makes decisions about curriculum and instruction.

Further, there is no specific student-teacher ratio for physical education classes. Colorado has a teacher evaluation system for all teachers and provides professional development events or funding for teachers to maintain or renew their certification or licenses (SHAPE America, 2016). The state does not require students to earn physical education credit for high school graduation, one of 12 states in the nation without this requirement (SHAPE America, 2016), nor does it require physical education grades to be included in students' grade point averages. The state does not permit schools or school districts to allow students to substitute other activities or apply for a waiver for physical education, while 31 other states allow such substitutions (SHAPE America, 2016).

The state and federal legislation and policy on school health and wellness in Colorado impacts the implementation and development of physical education programs statewide. In 2008, the state legislature encouraged school districts to expand their wellness policies to emphasize several areas, including physical education, for healthy choices and lifestyles (CDE, 2015). In

2009, schools were required for the first time to report on specific wellness services, and among them was physical education (CDE, 2015). As required by state statute in 2013, school districts used comprehensive guidelines to establish requirements for high school graduation, and physical education was one of the subject-matter areas (CDE, 2015). Due to the vagueness of the rules and recommendations, physical education programs still vary widely across school districts. Research indicates that only 13% of school districts in Colorado include language in their policies that requires or recommends a specific number of minutes for physical education (Colorado Health Foundation, 2016).

Regarding funding, Colorado ranks 42nd in the nation for per-student funding (Colorado School Finance Project, 2018). Between 1980-2015, the gap between Colorado and the national average for per-pupil spending continued to grow (Colorado School Finance Project, 2020). In 2015, Colorado spent \$2,162 less per student than the national average, compared to \$232 in 1980 (Great Education Colorado, 2020). With limited funding, schools made difficult decisions in balancing their budgets, and physical education was frequently not the budget priority. There are grants available to support physical education and activity, health, nutrition services, and bullying prevention in schools (i.e., the Colorado Health Foundation, the Colorado Education Initiative, and Healthy Schools Colorado), but they are competitive and inconsistently available. The two primary grants available for school districts to support physical education are the Student Wellness Program and the School Health Professional Program (Colorado Health Foundation, 2016). For example, in 2015 school districts received \$3,453,113 from the School Health Professionals Grant. The lack of funding and budget priority is the most significant barrier to quality physical education programming in Colorado (Colorado Health Foundation, 2016). On the other hand, school districts are under increased pressure to improve academic

achievement, which leads to a shift in budget priority toward academics and away from other areas, such as physical education. As a result, physical education has been elbowed out in many schools across the state.

The state of physical education in Colorado is needed to be updated, and more detailed information about its status would be beneficial for policy makers to build feasible legislation in physical education.

Model Policy for Physical Education in Colorado

Policy plays an important role in supporting the development of physical education programs (van der Mars, 2018). In Colorado, the PE for All Colorado Coalition recently released a model physical education policy, aiming to increase all children's health and wellbeing by creating school district policy recommendations for quality physical education programs. The PE for All Colorado Coalition was formed to improve physical education in Colorado schools. Coalition members represent a diverse group of organizations, such as the American Heart Association, Children's Hospital Colorado, the Colorado Children's Campaign, the Colorado Health Foundation, Healthier Colorado, LiveWell Colorado, Padres & Jóvenes Unidos, SHAPE Colorado, and Athletic Excellence, LLC. The PE for All Colorado Coalition is committed to providing quality physical education and to ensuring that every child is healthy and successful. The Coalition proposes four principals for physical education (Colorado Health Foundation, 2016). First, physical education taught by skilled professionals leads to children building lifelong skills for physical activity and valuing the importance of physical activity for their health. Second, physical education is essential for at-risk students who have limited opportunities to access to physical activity and physical education. Third, all students should receive daily physical education. Last, the Coalition commits to assisting interested school district partners by

identifying and overcoming potential barriers to implementation, establishing public support, and securing sustainable funding.

Dedicated to working toward a better future for children, the PE for All Colorado Coalition created the following school district policy recommendations:

- All elementary students receive 30 minutes daily or a minimum of 150 minutes per week of quality physical education.
- All middle and high school students receive 45 minutes daily or a minimum of 225 minutes per week of physical education.
- Physical education is taught by a licensed instructor with an endorsement in physical education.
- Physical education programs implement a standards-based curriculum.
- Students are engaged in moderate to vigorous physical activity for at least 50 % of physical education class.
- Physical education cannot be replaced with other physical activity opportunities, such as recess, classroom movement time, before/after school activities, etc. OR
- Physical activities, such as recess, classroom movement time, before/after school activities, and so on, cannot be a substitute for physical education.
- Waivers for all physical education requirements are not granted for participation in athletics or other activities.
- The number of students in physical education classes should be approximately the same as the number of students in other academic classes.
- Students are not withheld from physical education for academic or disciplinary reasons.

- Physical education attainment is assessed regularly throughout the school year.
- Physical education is equitable for all students within a school, the district, and across the state.
- Students with disabilities receive adaptive physical education that equates to that of their peers.
- Districts enact district-level policy encouraging physical education and provide supports for schools working to improve physical education for all students. District policy includes accountability measures for all schools.
- The state of Colorado adequately funds districts and schools so that physical education is attainable for all schools. Districts include physical education in all local funding opportunities, including planned mill and/or bond activities.
- Colorado policymakers create incentives, such as increased resources or recognition, for schools that meet or exceed Colorado's existing physical education standards.

While the complete picture related to the current status of physical education in Colorado is unknown, one of the purposes for this dissertation was to explore the status of physical education in Colorado schools. Additionally, Colorado House Bill 19-1161 the Comprehensive Physical Education Instruction Pilot (amended to be included as an Act in SB19-246) was drafted based on the PE for All Colorado Coalition's model policy for physical education, and the legislation was signed into law in May of 2019, which intends to give schools opportunities to fill gaps that hinder the implementation of quality physical education by providing three years of funding (McMullen & Rogers, 2020). From this perspective, this dissertation provides some additional proof points as to the realities of physical education in Colorado, which has the

potential to fill the gap between the PE for All model policy's recommendations and current physical education.

Stakeholders' Perceptions of Physical Education

This section will illustrate stakeholders' perceptions of physical education based on previous research, including students, parents, classroom teachers, and administrators.

Understanding stakeholders' voices to physical education plays an important role in the implementation and improvement of physical education in school.

Students' Perceptions

Listening to students' voices helps researchers to access their world. An individual's perception is their way of understanding something, which impacts their behavior and performance. How students perceive physical education will contribute to their engagement and there is a significant body of research relating to students' perceptions of physical education. The following are students' general perceptions of physical education, as well as their perceptions on learning environments, curricula, instruction, and assessment within physical education.

General Perception of Physical Education

Students believe physical education is important to their overall education (Tannehill & Zakrajsek, 1993). High school students, for example, rated physical education just after math, English, and science as their favorite subject (Bibik et al., 2007). However, if it were offered as an optional subject (an elective) in high school, one third of students would choose not to take physical education (Ha et al., 2003). Students believe in the goals of physical education include cooperating with peers, challenging themselves, taking risks, having fun, and learning motor skills (Dyson, 1995). Students believe that physical education is well managed and is taught by engaging teachers, and that it contributes to their healthy knowledge and behaviors by providing

a fun and social learning environment with multiple activities (Prusak et al., 2014). L. Williams et al. (2020) conducted a study to examine high school students' perceptions of online health and physical education classes. Their findings report students' positive perceptions of an online class may equal or surpass those of traditional, face-to-face physical education. Students in the online classes have positive perceptions about their virtual classes, the assignments, and the fitness tasks. They enjoy the online class because of the flexibility in choosing the physical activities, the time, the place for the activity (i.e., at home and within the community), and the pace of the assignments. Further, physical education teachers play an important role in shaping students' attitudes toward and perceptions of physical education (Georgakis, 2018; Phillips et al., 2019). Students view teachers as excellent pedagogues who demonstrate good physical appearance, professional dress, physical skills, kindness, knowledge, and ability to enhance students' positive attitudes and engagement (Ramos & McCullick, 2015; Ryan et al., 2003). On the other hand, they dislike teachers who cannot relate to students and who appear partially skilled (Ryan et al., 2003).

Learning Environment

Overall, both elementary and secondary school students have positive attitudes toward physical education in terms of their enjoyment (Colquitt et al., 2012; Georgakis, 2018; Kadir & Özkurt, 2016). Among the factors impacting students' positive perceptions, physical activity enjoyment shows the most powerful contribution to their attitude toward physical education (Gouveia et al., 2019). Students like physical education class for the fun it provides (Couturier et al., 2005; Tannehill & Zakrajsek, 1993), and fun and enjoyment are the two prominent features of attitudes toward physical education (Coulter et al., 2020; Phillips et al., 2019). Individual preferences, peer behaviors, and teacher behaviors are among the factors that impact students'

perceived enjoyment of physical education (Domville et al., 2019). Students have their preferences for the learning content in which they wish to participate. Their definition of fun and enjoyment changes with age, shifting from playing games to learning challenges (Dismore & Bailey, 2011). Meanwhile, teachers and peers play an important role in creating a learning environment. Teachers could consider students' needs for autonomy and enjoyment according to social determination theory (Domville et al., 2019). Teachers' different behaviors toward boys and girls is negatively related to students' motivation in class, and thereby equality is viewed as a vital factor for all students' participation in physical education (Papaioannou, 1998). Students also like physical education because of social interaction with peers in the class (Garn & Cothran, 2006). Creating an inclusive learning environment is important for students' involvement in physical education. While team sports and competitions contribute to a positive atmosphere, some students feel uncomfortable in those activities in which they are not included. Besides, negative peer feedback results in the feelings of stress and anxiety, especially for female students (Domville et al., 2019). For female students, creating a safe and caring class environment leads to feelings of social inclusion (Cothran & Ennis, 1999; Walseth et al., 2018; Woodson-Smith et al., 2015), and thereby they like working with partners and peers they trust (Walseth et al., 2018). Also, the study conducted by Bibik et al. (2007) indicates the majority (74%) of high students prefer coeducational class in a heterogeneous classroom environment, while 64% prefer working with peers of similar abilities in physical education class.

Curriculum

Researchers have conducted studies regarding students' perceptions on physical education curriculum design and implementation, including content, learning domains, and fitness activities. Societal changes, as well as students' needs and interests, are considerations for

curriculum revision (Ha et al., 2003). Co-creating the curriculum with students leads to increased feelings that learning is personally relevant (Walseth et al., 2018). Students enjoy participating in a variety of activities (e.g., game play and doing exercise) to have social interactions with peers (Dyson et al., 2009; Ryan et al., 2003). They like competitive team sport due to its health benefit (Couturier et al., 2005). It is suggested that students' opinions are considered when planning physical education programs and that student requests of new activities could be incorporated into the curriculum (Bernstein et al., 2011; Ha et al., 2003). Female students favor volleyball, tennis, badminton, games, and creative dance, while male students like soccer, basketball, handball, fitness, and Chinese kung-fu (Ha et al., 2003). Regarding the learning domain, psychomotor learning is valued as the top priority among learning objectives by students, while social and cognitive learning domains are recommended to be highlighted among female students for their engagement in physical education (Goodyear et al., 2014; Ha et al., 2003). Additionally, students' perceptions of fitness and fitness activities are different in various studies. Tannehill and Zakrajsek's (1993) study reports that students view fitness and fitness activities as unimportant. In contrast, students in another study felt fitness was an important aspect of the physical education curriculum (Stewart et al., 1991). Similarly, Rikard and Banville (2006) report that students accept fitness activities due to their known health benefits. Besides, the level of challenge provided in physical education class contributes to students' participation, and it is improved by providing a wider variety of sports, activities, and games (Bibik et al., 2007; Rikard & Banville, 2006; Ryan et al., 2003).

Instruction

Students' perceptions of physical education instruction consider teaching strategies, cooperative learning, teacher feedback, and technology. Student autonomy is related to their

engagement in physical education by satisfying their basic psychological needs (Agbuga et al., 2016; Legrain et al., 2015). Providing instructional choices supports the satisfaction of students' need for autonomy, which leads to the enhancement of cognitive skills and motor performance (Agbuga et al., 2016; Legrain et al., 2015). When exploring students' perceptions on the effectiveness of three teaching strategies (i.e., direct, peer, and inquiry strategies), study reports that students' conceptions of the affective dimensions of each strategy and their knowledge beliefs impact their perceptions. (Cothran & Kulinna, 2006). Further, students' perceptions on cooperative learning instructional models in both elementary and high school are positive. Students report that this instructional model encourages them to learn motor skills, participate in class, communicate and cooperate with group members, and have fun (Dyson, 2001, 2002). Additionally, the impact of teacher feedback on competence differs with gender (Nicaise et al., 2006). Girls perceive teacher feedback as important for their competence, while boys perceive little relationship between teacher feedback and their competence. Technology has also been integrated into physical education to promote student learning. The use of technology, such as wearing an accelerometer, motivates some students to participate in physical activity during physical education class (Marttinen et al., 2019).

Assessment

An instrument design study conducted by Mercier and Silverman (2014) investigated students' attitudes toward fitness testing with a sample of 1,199 high school students. Overall, the students demonstrate a slightly positive attitude toward fitness tests, and boys had more positive attitudes than girls. Further, the positivity of their attitudes decreases as they progress through high school. Students whose schools administer the FitnessGram test report higher attitude than those whose school administers the President's Challenge fitness test. The findings

highlight that gender and type of fitness test lead to differences in students' attitudes. More research on student and physical education program assessment are needed.

Students' perceptions are impacted by their backgrounds, including grade level, gender, race and ethnicity, sports experience, their parents, and negative health behaviors. Upper elementary school students have an overall favorable attitude toward physical education (Phillips & Silverman, 2015). Among secondary students, middle school students are more frequently involved in competitive sports, while high school students are more receptive to fitness activity (Tannehill & Zakrajsek, 1993). In general, middle school students prefer co-ed physical education class, whereas high school students prefer single-sex physical education class (Arabaci, 2009). In the study of Mercier et al. (2017), there was a significant decrease in students' positive attitudes toward physical education from grade five to eight, and the change happens faster for girls than boys. Similarly, students in grade eight report less enjoyment than do students in grades six and seven (Subramaniam & Silverman, 2007). One plausible explanation for this decrease is the repetition of the same activities and sports every year in physical education (T. B. Carlson, 1995; Subramaniam & Silverman, 2007). As a result, students become bored and lack interest. Other barriers for students' participation include overcrowding in the gymnasium, gender inequity, the lack of challenging content, overemphasis on competition, fitness testing activities, class periods, sweating, showering, and dressing out (Couturier et al., 2005; Dyson et al., 2009; Phillips et al., 2019; Ryan et al., 2003).

Students' positive attitudes decrease for both genders as they progress in grade level (Constantinides & Silverman, 2018; Phillips et al., 2020; Säfvenbom et al., 2015; Subramaniam & Silverman, 2007). Female students have less positive attitudes toward physical education compared to male students (Kadir & Özkurt, 2016; Säfvenbom et al., 2015; Stelzer et al., 2004).

Girls support the notion of equal opportunity and perceive more limits on their choices in physical education class compared with their male peers (Azzarito et al., 2006). Tannehill and Zakrajsek (1993) conducted a multicultural study to explore students' attitudes toward physical education. Anglo-American students like physical education class because they can be with friends, and Hispanic-American students are motivated by becoming more fit. Asian-American students are more likely to learn team sports and do not consider competition to be important. African-American students value the importance of teamwork more than sportsmanship. Additionally, when examining students' attitudes toward physical education in Austria, Czech Republic, England, and the U.S., students from the Czech Republic had more positive attitudes than Australian, American and English students (Stelzer et al., 2004). Students with sports participation have more positive attitudes toward physical education than students without sports participation (Koca & Demirhan, 2004). Parents' beliefs, encouragement, and participation in physical activity are positively related with their children's attitudes toward physical education (Chek & Pandey, 2016; Papacharisis & Goudas, 2003; Xiang et al., 2003). In addition, students with negative health behaviors (i.e., smoking, drinking, and using drugs) experience less enjoyment in physical education (Bibik et al., 2007). In contrast to these findings, a study conducted by Atan and Imamoglu (2016) indicates that grade, gender, place of residence, parents' level of education, level of income, and number of siblings did not affect secondary school students' attitude toward physical education and sports lessons.

Parents' Perceptions

This section illustrates how parents perceive physical education programs within schools according to previous research to understand parents' thoughts of physical education. Parents demonstrate positive perceptions of physical education (Graham, 2008; Sheehy, 2006; Stewart &

Green, 1987; Yaldız & Özbek, 2018). Stewart and Green (1987) found that 82% of parents feel physical education should be part of students' overall education, and 69% feel it should be required at every grade level. Parents view physical education as a combination of participating in physical activities, playing time, health-related fitness, health promotion, and personal and social development (George & Curtner-Smith, 2018; Na, 2015). They expect physical education classes to take the form of teaching-learning practices rather than fitness training practice (Carreiro da Costa et al., 1996). Parents feel health, fitness, and sports discourses are important in physical education (Coulter et al., 2020). Further, they favor psychomotor development over cognitive and affective development for children in class (Stewart & Green, 1987). Although parents believe physical education should have a place in the core curriculum, they do not consider physical education as important as other subjects (Carreiro da Costa et al., 1996; Stewart & Green, 1987).

There is a lack of regular conversation about physical education class between parents and their children according to the study of Active Schools (Brewer & Burgeson, 2019). This study indicates that only 37% of parents talk frequently with their child about what they are learning in their physical education class, 32% talk about it infrequently, and 24% not at all. Similarly, Sheehy's (2006) study reported that few parents attempt to acquire information about their children's physical education program, and many parents actually possess inaccurate information about it. As a result, parents have little knowledge about their child's program (Coulter et al., 2020). Therefore, parents' perceptions on physical education are based on their prior experience in physical education, their participation in organized and informal sports or physical activities, their relatives, their peers, and the media (George & Curtner-Smith, 2018; Sheehy, 2006).

Researchers have also conducted studies on the perceptions of the parents of children with physical disabilities. The study of Downing and Rebollo (1999) explores parents' perceptions with respect to the factors they consider essential for the placement of children with disabilities into adapted physical education program. The findings reveal that class size, program support, physical and communication skills, health status, and motivation are the factors that are key to creating an effective adapted physical education program (Downing & Rebollo, 1999). Further, An and Goodwin (2007) focus specifically on mothers' perceptions on physical education for students with spina bifida. The mothers believe physical education contributes to their children's development in terms of social development and health. They report that children's physical education experiences and community sport experiences strengthen each other.

While there is not an abundant amount of research that considers parents' perceptions of physical education, there is evidence that parents' overall perceptions are positive. Since there is a lack of understanding of their child's physical education, this dissertation explored how parents perceive physical education programs in Colorado.

Classroom Teachers' Perceptions

When considering students, parents and principals, there are even fewer studies on classroom teachers' perceptions. However, according to the existing research, classroom teachers likely have positive attitudes toward physical education (Barney & Deutsch, 2009). Most classroom teachers indicate that physical education is important for students' physically active lifestyles and academic learning and the majority of teachers report that they know the physical education teachers in their schools (Barney & Deutsch, 2009). Interestingly, classroom teachers who teach physical education highly value the benefit of physical education on students' health

and learning (Morgan & Hansen, 2008b). They believe physical education contributes to a decrease in students' obesity, promotes their academic learning, and improves their social skills. There are few studies on this topic, and thereby more research is needed to explore classroom teachers' perceptions on physical education.

Administrators' Perceptions

Compared to the available research on students and parents, even fewer studies have been conducted on administrators' perceptions on physical education programs. Administrators' perceptions of the value of physical education are positive, and they were satisfied with the school's physical education program outcomes (Lounsbery et al., 2011; Zeng & Wang, 2015). Administrators' perceptions of physical education vary with their level and location. Elementary school principals were more likely to understand physical education as having equal importance to other subjects (i.e., English, math, and science) as compared to middle school principals (Zeng & Wang, 2015). Elementary and middle school principals are more fully in agreement that physical education is a chance for students to "blow off steam" than high school principals (Urtel & Vogel, 2011). Middle school principals tend to agree more often than high school principals with providing daily physical education for students (Urtel & Vogel, 2011). Further, principals in rural areas believed less in the impact of physical education on student fitness than those in suburban areas (Urtel & Vogel, 2011). Zeng and Wang (2015) took a step forward to compare female and male principals' perceptions, finding no difference between them.

When referring to FitnessGram, principals indicated FitnessGram plays an important role in policy and decision making at their schools, but a majority of principals do not integrate FitnessGram into their policy and decision-making process (Suminski et al., 2019). While principals are committed to building a positive school environment to support students' healthy

and active behaviors, they demonstrate a general lack of familiarity with physical education programs in their schools (Banville et al., 2020; Lounsbery et al., 2011). Additionally, principals report barriers to the implementation of physical education programs at their schools, including a lack of support from school policy, physical education curriculum issues, a lack of resources and financing, and teacher qualifications and preparation problems (Lynch & Soukup, 2017; Rainer et al., 2012).

In conclusion, there are a lot of existing research on students' perceptions of physical education, however, there is a lack of research with regard to perceptions of parents, classroom teachers, and administrators on physical education, and thereby more research is needed to explore those stakeholders' perceptions of physical education. Further, there is a lack of comprehensive investigation into the perceptions of physical education from multiple groups of stakeholders within the same study, and this study attempted to fill this gap.

Theoretical Framework

A theoretical framework is the driving force that guides the research process, including the perspective used to conduct the research, the ways the data is interpreted, and the form the written presentation takes. There are three major theories that have been directing the study related to the implementation of physical education, including self-determination theory, achievement goal theory, and constructivism. Both self-determination theory and achievement goal theory are used for motivation research, and constructivism describes students' meaning making about learning. This study adopted the theoretical framework from the social ecological angle. The section provides a literature review of all these theoretical perspectives so as to reveal how social ecological is the most appropriate.

Self-Determination Theory

Self-determination theory describes human motivation and highlights the importance of humans' evolved inner resources for personality development and behavioral self-regulation, and the heart of this theory is self-regulation (Ryan & Deci, 2000). One tenet of self-determination theory is the three forms of motivation that explain individuals' behaviors: intrinsic motivation, extrinsic motivation, and amotivation. Students with intrinsic motivation pursue tasks for enjoyment and satisfaction, and they participate in physical activities for fun. Intrinsic motivation is the most autonomous motivation in self-determination theory. Students with intrinsic motivation are able to maintain motivation to learn and to achieve their own expectations (Chen, Zhu, et al., 2016). Extrinsic motivation refers to participation in physical education for external reasons, and thereby some students participate in physical education is to receive rewards or avoid punishment from teachers (Ryan & Deci, 2000). Usually, students are more likely to demonstrate extrinsic motivation for a reward; the goal of schooling, however, is to help students move from extrinsic motivation to intrinsic motivation, such that the students enjoy engaging in physical education for fun and satisfaction rather than for grades or praise from the teacher. Amotivation represents students' lack of both intrinsic and extrinsic motivation to participate in physical education (Ryan & Deci, 2000).

Another tenet of self-determination theory is its indication that motivation is derived from humans' fundamental psychological needs for autonomy, competence, and relatedness (Ryan & Deci, 2000). Individuals have a need for autonomy, to feel responsible for their behaviors (De Charms, 1968). Autonomy is given to students who are involved in the decision-making process and allowed to make choices about their learning in the physical education classroom. Teachers provide opportunities for students to choose appropriate equipment and tasks, which supports

students' autonomy. The need for competence refers to an individual's need to interact with the environment and achieve outcomes (Ryan & Deci, 2000). Students tend to be motivated when they become proficient and succeed in learning skills (Xiang et al., 2017). Individuals also have a need for relatedness, to feel connected to and accepted by significant others (Ryan & Deci, 2000). Students feel more motivated when they feel connected with their peers, teachers, and the school (Ryan & Deci, 2000). Overall, autonomy, competence, and relatedness are motivational sources of engagement and performance in one's context, including the physical education classroom (Deci & Ryan, 1985). Here, teachers and peers are significant social factors that influence students' satisfaction and achievement (Legrain et al., 2011; Sarrazin et al., 2002; Zhang et al., 2011).

Self-determination theory is one of the most widely used theoretical frameworks for studying motivation in physical education. Many researchers utilize self-determination theory to frame their studies, most of which are quantitative, employing surveys as the most prevalent research methodology among them (e.g., a motivation questionnaires). Participants have been studied from all over the world, such as the U.S., Belgium, Britain, Finland, Turkey, Spain, Argentina, and Colombia. Some researchers integrate self-determination theory with other theories (e.g., achievement goal theory, flow theory, and expectancy-value model) in their studies. Additionally, students' motivation in physical education has been examined through the lens of self-determination theory, as well as using the theory to predict student involvement in physical activity outside of school.

Physical education teachers play an important role in students' fulfilment of the three aforementioned psychological needs, including autonomy, competence, and relatedness (Rutten, et al., 2012). For instance, providing choice has the potential to improve student autonomy,

which leads to student engagement and higher physical activity levels in physical education classes (How et al., 2013). Teachers' support for students' psychological needs was able to maintain student motivation during the transition from elementary to middle school (Rutten et al., 2015). Autonomous motivation positively predicts students' intention to physical activity and sports, and thereby supporting student autonomy in physical education contributes to their intention to become involved in physical activity outside of school (T. G. Johnson et al., 2011; Sanchez-Oliva et al., 2014).

Beyond this, integrating self-determination theory and the expectancy-value model, Zhang, Solmon, and Gu (2012) add that a supportive environment, high levels of expectancy-related beliefs, and subjective task values are positively associated with students' achievement outcomes in physical education. Regarding skills testing in physical education, teachers are encouraged to use criterion-referenced, formative skill tests, especially when teaching girls (T. G. Johnson et al., 2011). Additionally, when learning objectives are vague, students may be motivated to participate in classes, but their participation may not contribute much to their knowledge and skill attainment (Sun & Chen, 2010).

Overall, when considering the findings associated with studies framed by self-determination theory, it is important that physical education supports students' needs for autonomy, competence, and relatedness. To do so, teachers could provide students with choices, a supportive learning climate, positive feedback, encouragement, and the opportunity for social connections with peers (Agbuga et al., 2016; Bryan & Solmon, 2007; Shen et al., 2009; Zhang, Solmon, & Gu, 2012).

Achievement Goal Theory

Achievement goal theory is the second most common theory within physical education literature. The central tenet of this theory is that humans are deliberate organisms and act in a rational manner to achieve goals based on their objectives (Nicholls, 1984). Achievement goal theory assumes individuals strive to achieve the goals set by both others and themselves. There are two types of goal orientations: ego/performance goal orientation and task/mastery goal orientation (Nicholls, 1984). Students with an ego/performance goal orientation focus on performing better than others, while those with a task/mastery goal orientation emphasize completing the task (Chen, Zhu, et al., 2016). These goal orientations lead to two different types of involvement states: ego-involvement and task-involvement state (Nicholls, 1984). These two states are influenced by the individual's disposition and situation. The situation is the context in which students participate, such as their educational and family environments. A particular motivational learning environment can strengthen students' goal orientation (Todorovich & Curtner-Smith, 2002).

In physical education, achievement goal theory is utilized as a theoretical framework to explain students' motivational responses to learning in a context. Similar to studies on self-determination theory, most studies with achievement goal theory as their theoretical framework use a quantitative approach. Surveys remain the main research design, using measurement instruments (e.g., Achievement Goal Scale, Physical Activity in Children Enjoyment Survey, and Persistence and Effort Scale) to collect data. Samples are majorly selected from upper elementary and secondary schools. Scholars use achievement goal theory to understand students' achievement motivation and behavior in physical education (Agbuga & Xiang, 2008).

Research indicates that students who want to master skills, outperform peers, or avoid performing poorly put more effort into persisting in physical education classes (Agbuga & Xiang, 2008). Students' in-class motivation for physical activity and their enjoyment of physical education vary with gender, grade and belief (C. E. Johnson et al., 2017). The boys were more active than the girls, 7th/8th graders were more active than 6th graders, and students who perceived that their teachers emphasized effort and improvement reported more enjoyment. A task-oriented climate predicts student enjoyment in activity; in this climate, students with task/mastery orientation tend to have fun and experience enjoyment in physical education classes (Kalaja et al., 2009), whereas those with ego/performance orientation might feel bored (Duda et al., 1992; Duda & Nicholls, 1992; Fernández-Río et al., 2012). Wallhead and Ntoumanis (2004) took the additional step of examining not only enjoyment, but also perceived effort and competence. Their findings showed that students in a Sport Education unit reported significantly higher enjoyment, perceived effort, and perceived competence in physical education through team continuity and peer coaching.

Some studies, guided by both self-determination theory and achievement goal theory, reported task-oriented climate and intrinsic motivation are positively associated in physical education class (Baena-Extremera et al., 2015; Papaioannou et al., 2007). More specifically, students within a task-oriented learning climate have fun and feel satisfied in physical education classes, and they are intrinsically motivated to be involved in the task. An early study (Papaioannou et al., 2007) confirm that mastery goals are able to enhance the intrinsic motivation of students.

Overall, when considering the findings of achievement goal theory-based research, physical education teachers should create a motivational climate that helps students adopt a

task/mastery orientation by emphasizing students' improvement. Physical education teachers could also consider the effect of different goals on students' learning when designing their programs and classes.

Constructivism

Constructivism is a theory surrounding the construction of meaning in learning and education (Von Glasersfeld, 1987). The central tenet of constructivism theory is that learning is an active, social, and creative process (Rovegno & Dolly, 2006). From a constructivist perspective, students are active agents in the process of their learning, and they construct knowledge through their interpretations, which are derived from a framework that is composed by their prior experiences rather than transmitted from teachers (Von Glasersfeld, 1987). Students make meaning for themselves by connecting their ideas with their experiences, both individually and in social groups (Azzarito & Ennis, 2003; Gagnon & Collay, 2001). Learning is meant to take place in a collaborative environment (Sparapani, 2013), and the support from teachers and peers helps to extend students' learning (Dell'Olio & Donk, 2007).

Unlike self-determination theory and achievement goal theory, constructivism is typically utilized in qualitative research. According to the content analysis by Hemphill et al. (2012), constructivism was cited mostly in qualitative research in the *Journal of Teaching in Physical Education* between 1998 and 2008. The techniques used to collect data include one-on-one semi-structured interviews, focus group interviews, photos, diaries, videotaping, systematic observations, field notes, researcher journals, participant reflections, and documents (e.g., lesson plans and meeting transcripts). Studies usually use focus group interviews for children and one-on-one semi-structured interviews for teachers.

Researchers use constructivism in physical education to explore the meaning-making of students about their learning when working with others within a physical education class. Social interaction was important for students' learning in class, and they preferred to work together with friends and peers they trust (Koekoek & Knoppers, 2020). Among constructivist studies, many focuses on cooperative learning. Research indicated that teacher and students held similar perceptions on cooperative learning in six areas: goals of the lessons, student roles, accountability, communication skills, working together, and practice time (Dyson, 2002).

Visual methods are used as a pedagogical approach to understand students' learning in physical education, typically among elementary school students (Chroinín et al., 2020). Scholars used photo diaries and a photo-elicitation focus group interview with students to understand teaching and learning in elementary physical education (Chroinín et al., 2020). The findings conclude that photo diaries act as a means to support students' meaning-making processes about their learning by allowing them to actively engage with making sense of their experience. The authors also highlight that the use of the photo diaries help others to access and understand the children's world.

In summary, while there are three common theoretical frameworks used in physical education research, there are also other theories used to guide research in this area. Some examples of such theories are the theory of planned behavior, the theory of reasoned action, feminist theory, innovation adoption theory, expectancy-value theory, interest theory, attitude theory, self-concept theory, self-efficacy theory, self-esteem theory, ecological theory, poststructuralism, and the implicit theory of ability.

Theoretical Framework for the Dissertation

While not as popular in physical education-related research as the theories described above, the social ecological model will serve as the theoretical framework for this dissertation. The following section address the social ecological model, its general use in research, and its application to this dissertation.

Social Ecological Model

The social ecological model is a theory of human development, illustrating the interactions between humans and their surroundings to understand how complex networks of factors affect individuals' development (Stokols, 1992). Development in this context refers to “the set of processes through which properties of the person and the environment interact to produce constancy and change in the characteristics of the person over the life course” (Stokols, 1992, p. 191).

The term ecology describes the interactions between an organism and its environment (Hawley, 1950). With its roots in biology, the ecological paradigm has evolved into other disciplines (e.g., sociology, psychology, and economics) to provide a framework for understanding the nature of an individual's transaction with their physical and sociocultural environment (Barker, 1968; Cassel, 1964; Rogers-Warren & Warren, 1977). Social ecology emphasizes the social, institutional, and cultural contexts of human-environment relations (Alihan, 1964; Binder et al., 1975; Michelson, 1970). A social ecology perspective in human behaviors is commonly applied in the health field. For example, it can be used to understand the role of human behaviors in chronic disease (McLeroy et al., 1988) and to assess health lifestyles (Winett, 1985).

The social ecological model was proposed by Bronfenbrenner (1992), and it is composed of five factors that contribute to an individual's development. The individual and their unique characteristics are placed at the center of the model, and there are four levels of external factors that influence an individual's behaviors, including micro-, meso-, exo-, and macrosystem levels of influence (Bronfenbrenner, 1992). The microsystem includes individuals' face-to-face interpersonal relations in specific settings. For the purposes of this dissertation, the setting is physical education. Students interact with teachers and peers with different characteristics. Beyond this, the physical environment (e.g., equipment and facility) has an impact on students' learning outcomes. The mesosystem is in turn composed of microsystems, or the interrelations between the individuals and the various settings that contain the developing individual. These are family and school in this study. Parents, classroom teachers, and principals directly influence students' development; meanwhile, they have the potential to promote or hinder the implementation of a physical education program. The exosystem incorporates this linkage between individuals and a larger social system that may not contain the developing individuals, such as organizations, institutions, and community. The macrosystem refers to cultural beliefs and values that impact the micro-, meso-, and exosystems. For instance, public policy at the national, state, district, or school levels contribute to students' development and the implementation of physical education.

Social Ecological Model in Research

The social ecological model is becoming more widely used in multiple areas, such as public and school health and wellness promotion, children's obesity prevention, student physical activity prediction and promotion, tobacco control, and violence prevention (Dahlberg & Krug, 2002; Langille & Rodgers, 2010; Li & Rukavina, 2012). Using the social ecological model as a

framework, researchers have conducted studies on school students' development, including the promotion of physical education programs, student health, and physical activity promotion.

The social ecological model has been applied in physical education research in particular. Physical education is positively viewed by the stakeholders (i.e., students, parents, classroom teachers, physical education/health wellness teachers, and administrators) regarding the role of physical education in school-wide health promotion (McLoughlin et al., 2020). Stakeholders reported the barriers to implement quality physical education program were lack of leadership, feelings of marginalization, and insufficient funding and collaboration. Further, there are few significant associations between district/school policy and physical education programs, and this may be because schools did not fully implement the policies they adopted (Lounsbery et al., 2013). However, there were significant associations between physical education policies and physical education environmental variables, and district policies had more impact on physical education than those at the school level (Lounsbery et al., 2013).

Research on physical activity primarily focuses on individual-level factors, such as self-achievement, self-efficacy, and self-esteem. According to the social ecological model's assumption that individuals' behaviors are shaped by interpersonal interactions, family, school, and larger communities, Zhang, Solmon, Gao, and Kosma (2012) conducted a study to investigate the relationships among individual, social environmental, and physical environmental variables in physical activity behaviors. The findings indicate that multiple factors impact the effectiveness of physical activity promotion interventions among school students. Similarly, a study conducted by Hyndman et al. (2012) explored the multi-level factors of influence on secondary students' physical activity behaviors. The students studied reported that schools may need to incorporate more features to school play spaces to more successfully promote physical

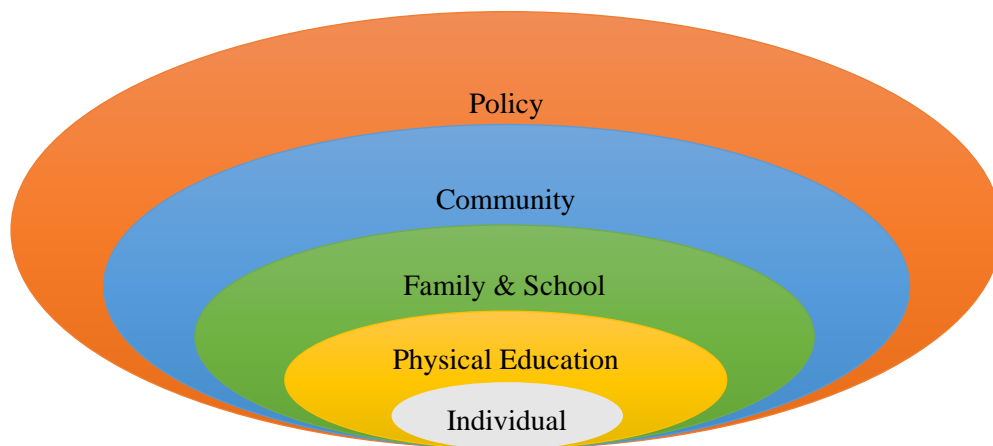
activity. Additionally, a study conducted by Langille and Rodgers (2010) starts with the upstream social-structural conditions that impact down-stream health behaviors, exploring how policy, community, and organizational levels interact and influence school-based physical activity. They did interviews with government employees, the public-school board, principals, and teachers. Their results suggest higher-level policies trickle down into schools, but the schools have the pivotal responsibility to implement those policies for student physical activity promotion. Schools, however, have difficulty in implementing them because of the continued priority of academic achievement. The study confirms that full implementation of those policies should not be assumed from policy adoption.

Social Ecological Model as Theoretical Framework for this Dissertation

The social ecological model served as the theoretical framework through which to understand the influence of multiple factors on implementing physical education within schools (see Figure 2.1). This dissertation explored the perceptions of students, parents, classroom teachers, and administrators with respect to physical education programs in schools. This theoretical framework can be helpful when trying to understand the perceptions of multiple groups of stakeholders with respect to physical education programs. The multi-layered complexity associated with physical education is reflected nicely by the social ecological model which is inclusive of different stakeholders' understandings of physical education. Students, parents, classroom teachers, and administrators all impact the interactions and relationships within the nesting circles of the social ecological model. Listening to different stakeholders' voices is important to understand what is actually happening during physical education in schools, which contributes to designing and developing high-quality physical education programs.

Figure 2.1

Social Ecological Model for Development School Physical Education.



Summary

Physical education plays an important role in students' health and wellbeing. Understanding physical education has the potential to contribute to the implementation and improvement of physical education in Colorado. The PE for All Colorado model policy provides recommendation to describe what a high-quality physical education program looks like in Colorado (Colorado Health Foundation, 2016), however, there is no resource or date regarding the status of physical education in Colorado. Simultaneously, listening to stakeholders' perceptions of physical education can help physical education teachers and schools provide standards-based curriculum, appropriate instruction, inclusive learning environment to meet students' needs. Therefore, this dissertation was to learn about the status of physical education and stakeholders' perceptions of physical education. The findings can provide a baseline to assist policy makers in building feasible legislation to implement physical education and tracking change over time, help schools find creative ways to tackle the challenges of implementing

physical education, and contribute to design physical education programs while considering stakeholders' perceptions. Additionally, social ecological model served as the theoretical framework to understand how students, parents, school, and policy influence the development of physical education in school.

CHAPTER III

METHODOLOGY

This chapter includes an in-depth explanation of the methodology adopted for this dissertation, including research design, participants and/or contexts, data collection, data analysis, and trustworthiness and/or validity. What follows is the detailed information of the methodology for study one and study two respectively.

Methodology for Study One: The Status of Physical Education in Colorado

A mixed methodology was selected to explore the status of physical education in Colorado (Creswell, 2009). The data were collected in two phases: Phase 1 included the administration of an electronic survey; and Phase 2 employed a semi-structured interview technique.

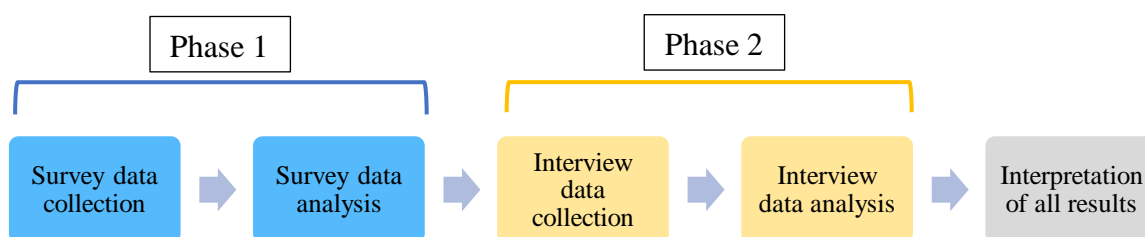
Research Design

Mixed method uses the strengths of both quantitative and qualitative research to address problems and phenomena within a study (Creswell, 2009). While there are a variety of strategies available for a mixed method design, the sequential explanatory strategy is appropriate for this study because this study conducted quantitative research techniques, followed by qualitative research techniques. The sequential explanatory strategy involves a first phase of quantitative data collection and analysis, followed by a second phase of qualitative data collection and analysis that builds on the results of the first phase, and is typically used to explain and interpret quantitative results (Creswell, 2009). For this study, all participants completed an initial survey,

followed by semi-structured interviews to follow up on the survey results with a sub-sample of participants who had indicated on their survey that they were willing to be interviewed (see Figure 3.1).

Figure 3.1

Procedure of Data Collection and Analysis



Participants

A combination of convenience, targeted, and purposive sampling was used to recruit participants (M. Q. Patton, 2015; Watters & Biernacki, 1989). The population for this study consisted of physical education teachers teaching at K-12 schools, including public schools, private schools, charter schools, and online schools from eight regions in the state of Colorado (i.e., Metro Area, North Central, Northeast, Northwest, Pikes Peak, Southeast, Southwest, West Central). Approximately 2,000 physical education teachers in Colorado were recruited to participate, 248 participants initiated the survey, and 201 (81%) fully completed the instrument. Physical education teachers in prek-5, K-5, and K-8 were identified as elementary school teachers for analysis purposes. General demographics and characteristics of the respondents are summarized in Table 3.1.

Table 3.1*Summary of Demographic Characteristics for Online Survey*

Characteristics	<i>n</i>	%
Grade level		
Elementary	98	48.7
Secondary	95	47.3
K-12	8	4.0
Regions		
North Central	32	15.9
Northeast	2	1.0
Northwest	13	6.5
Southeast	1	0.5
Metro Area	111	55.2
Pikes Peak	28	13.9
Southwest	5	2.5
West Central	9	4.5
Setting		
Urban	122	60.7
Suburban	54	26.9
Rural	25	12.4
Charter School		
Yes	18	9.0
No	183	91.0

Table 3.1 (continued)

Characteristics	<i>N</i>	%
Public School		
Yes	193	96.0
No	8	4.0
Free and reduced lunch		
1-19%	59	31.7
20-39%	44	23.6
40-59%	28	15.1
60-79%	32	17.2
80-99%	23	12.4

Note. *N* = 201.

A total of 52 physical education teachers (25.9%) indicated a willingness to participate in the interview, ultimately 12 teachers were interviewed ($n = 5$ female and $n = 7$ male). The participants represented seven regions in Colorado and included six elementary school teachers and six secondary school teachers with teaching experience ranging from one to 41 years. They taught at 10 public schools and two charter schools. One of the schools was an online public high school in the Metro area. Table 3.2 includes a summary of demographic characteristics for the interview participants who have been assigned pseudonyms.

Table 3.2*Summary of Demographic Characteristics for Physical Education Teachers*

Teacher	Gender	Teaching Experience (years)	Grade Level	Charter School	Setting	Region
Jack	M	1	Elementary	No	Suburban	West Central
Julia	F	17	Elementary	No	Urban	North Central
Levi	M	32	Elementary	No	Rural	Southwest
Kinsley	F	5	Elementary	No	Suburban	Pikes Peak
Ella	F	4	Elementary	Yes	Urban	Metro Area
Judy	F	9	Elementary	Yes	Urban	Metro Area
Ryder	M	13	Middle	No	Rural	North Central
Sadie	F	13	Middle	No	Rural	Northwest
Paul	M	41	High	No	Rural	Northwest
Rowan	M	38	High	No	Rural	Southeast
Carter	M	24	High	No	Urban	Metro Area
Eli	M	8	High (Online)	No	Urban	Metro Area

Note. $N = 12$.**Instrumentation*****Survey***

An online survey was employed to obtain schools' demographics and information about the current status of physical education in their schools (see Appendix A). The researcher designed the Status of Physical Education in Colorado Survey by modifying the School Health Index (SHI; CDC, 2017) so that it better aligned with the PE for All model policy. While some questions were drawn directly from the SHI, the researcher added additional questions that

connect more closely with the PE for All model policy, aligning the format of the survey questions with the ones already established by the SHI. Additionally, an open-ended response box right was included after each question to allow participants to provide more detail for their responses. For example, “Are students engaged in moderate to vigorous physical activity (MVPA) at least 50% during most or all physical education class sessions?” The four responses were: (a) Yes, most or all classes, (b) During about half the classes, (c) During fewer than half the classes, and (d) During none of the classes, which was followed by “Please provide more detail that describes how you know students are getting MVPA (or not) in physical education (e.g., describe any tools used to measure MVPA).”

The survey was administrated using Qualtrics, which is a web-based survey software tool (Qualtrics, 2020). The survey consisted of 19 questions divided into two sections: school demographics and the status of physical education in the school. There were three questions about school demographics (i.e., school name, district, grade level), and 16 questions about the status of physical education in their schools on topics covered in the PE for All model policy. At the end of the survey, an open-ended question asked teachers to enter their email so that the researcher could contact them if they were willing to participate in a follow-up interview. Teachers who were not interested in participating in an interview could leave this field blank.

Semi-Structured Interview

Semi-structured interviews with a sub-sample of participants were conducted to better understand the status of physical education in Colorado and to explore the facilitators and barriers of implementing physical education in schools. Thus, the interview guide included two sections: follow-up questions based on survey responses and questions about perceived physical education implementation facilitators and barriers (see Appendix B). Follow-up questions

included, for instance, asking the participants to elaborate on why they indicated there was not sufficient funding for physical education in their school, or the ways that they included all students in their class (inclusion).

Data Collection

Data sources in this study included the Status of Physical Education in Colorado Survey in Phase 1 and semi-structured interviews in Phase 2. Data collection techniques for each phase are described in detail below.

Phase 1: Survey

Convenience and targeted sampling were used to recruit participants in this Phase. A convenience sampling is a non-probability sampling method wherein the researcher locates participants who are easy to contact or reach (M. Q. Patton, 2015), while targeted sampling which is a purposeful and systematic, attempts to represent the population by developing controlled lists of specified populations within geographical districts (Watters & Biernacki, 1989). The researcher used an online sample size calculator through Qualtrics to determine the sample size. The sample size for this study ($N = 201$), exceeds the ideal sample size of 182 with 95% of confidence level, 2,000 of population size, and 7% of margin of error (1-10% is acceptable).

After receiving Institutional Review Board (IRB) approval (see Appendix C), the researcher began data collection for Phase 1. First, the researcher collected data using convenience sampling by initiating contact through mass emails (with access and permission to use a state-wide email list of the majority of physical education teachers in Colorado). An email was sent to approximately 2,000 physical education teachers in Colorado to inform them of this study and provide them with the link to the survey (see Appendix D). Teachers read the consent

form (see Appendix E) and agreed to participate in this study by clicking on the arrow at the end to proceed to the survey questions. It should be noted that this list may also include emails that are not current or be missing emails of some Colorado physical educators. Next, targeted sampling was used by resending the email after seven days to ensure the participants were from all eight regions within Colorado and were representative of the distribution of elementary and secondary schools in the state. Ultimately the sample included teachers from 48.8% elementary schools ($n = 98$), 47.3% secondary schools ($n = 95$), and 4.0% K-12 school ($n = 8$); which corresponds with actual percentages of schools in Colorado - 58% elementary schools, and 42% secondary schools in Colorado (CDE, 2021).

Phase 2: Semi-Structured Interview

Purposive sampling was used for recruitment to participate in the semi-structured interviews (M. Q. Patton, 2015). Follow-up semi-structured interviews were conducted with a sub-sample of teachers who indicated on their survey that they were willing to be interviewed, and the researcher selected 12 participants from among them. Participants only represented seven regions because no participant from the northeast region indicated an interest in the interview phase. There were a similar number of participants from elementary and secondary schools (i.e., $n = 6$ elementary school teachers; $n = 6$ secondary school teachers). Additionally, the researcher considered charter schools, the setting of schools (i.e., urban, suburban, rural), and teacher's gender and years of teaching experience when selecting participants for this phase. The researcher contacted those physical education teachers by email (see Appendix F) with a consent form attached (see Appendix G) and scheduled a virtual interview. Meanwhile, the researcher created an interview guide based on the initial results of the survey data. The interviews were conducted via video call (i.e., Zoom), lasted approximately 30-45 minutes, and were audio

recorded. Audio recordings were transcribed verbatim, and participants were provided with a pseudonym for reposting purposes.

Data Analysis

Following the sequential explanatory approach, survey data were analyzed during Phase 1 and interview data analysis occurred in Phase 2. The quantitative survey data were analyzed using SPSS, and the qualitative survey data (i.e., the open-ended responses) and teachers' response to interview questions were analyzed using open and axial coding (Corbin & Strauss, 2008). Ultimately, the researcher combined the results to interpret the status of physical education in Colorado.

Survey data were analyzed with descriptive statistics for frequencies and percentages using SPSS, aiming to represent the schools' demographics and information regarding physical education in their schools (Huck, 2011). Descriptive statistics (i.e., measures of central tendency) were used to explore the status of physical education in the schools of participating teachers with frequencies, percentages, and means. The topics related to the status of physical education were based on the 15 components of physical education covered in the PE for All recommendations.

Additionally, teachers' responses to the open-ended survey questions and the interview questions were analyzed using open and axial coding (Corbin & Strauss, 2008). During open coding, the detail of teachers' responses to survey questions and all interview transcripts were read several times, identifying significant phrases or sentences that pertain directly to information about physical education's status and teachers' perceptions of facilitators and barriers in their schools. Codes were noted in the margins. Next, relationships among the open codes were identified in the process of axial coding in which the codes with the same meanings

were combined into categories to address the status of each component of physical education as well as the facilitators and barriers of physical education implementation.

Finally, the survey and interview data were combined to further understand the status of physical education and facilitators and barriers to physical education implementation. The quantitative survey data provided a big picture of the status of physical education, while the open-ended responses and interview data provided additional context for the quantitative data. For example, the detail in the survey and teachers' responses to interview questions were used to explain what kind of assessment techniques teachers employed in classroom, and why physical education in secondary schools was more likely to have bigger class sizes than elementary schools compared with other academic classes.

Survey Validity and Trustworthiness

Validity for the Status of Physical Education in Colorado Survey was established by expert review (Tavakol & Dennick, 2011; Thorn & Deitz, 1989) and piloting the survey instrument. Trustworthiness for the semi-structured interviews was established using several separate techniques, including data triangulation, a researcher journal, peer debriefing, and an audit trail (Merriam, 2015).

To establish content validity for the survey, expert review was employed (Thorn & Deitz, 1989). Expert review is an approach that involves having experts evaluate the content validity of the instrument by assessing whether a survey is representative of all the aspects of the construct (Thorn & Deitz, 1989). Two experts in physical education survey development reviewed and revised the Physical Education in Colorado Status Survey (DeVellis, 1991). Referencing the PE for All model policy and SHI, the two experts were asked to critique the readability, clarity, conciseness, and layout of the survey. As a result, directions for participants were added at the

beginning of the survey, some specific details were included for open-ended questions, the questions regarding instruction time were changed to open-ended questions from multiple-choice questions, more options were provided for the question of grade level, and some of the questions were changed to four-point scale from three-point scale. In addition, the researcher conducted a survey pilot in which three physical education teachers from different levels of schools (i.e., elementary, middle and high school). They were asked to complete the survey and provide feedback on the wording of the questions and instructions. According to their suggestions, school district and school were highlighted when asking about school district funding and school funding, and the responses for the survey question of substitution for physical education were revised.

Trustworthiness describes the rigor of a study and involves confidence in the degree to which the data, interpretation, and methods used ensure the quality of the study (Polit & Beck, 2014). Trustworthiness in this study was established through several separate techniques, including data triangulation, a researcher journal, peer debriefing, and an audit trail.

Data Triangulation

Data triangulation refers to the use of multiple sources and data collection methods to confirm emerging findings (Denzin, 1970; Merriam, 2015). Triangulating the data helps to develop a comprehensive understanding of the problem and studied phenomena through the convergence of information from different sources (Denzin, 1970). Data were triangulated for analytical purposes across all data sources. In this study, survey and semi-structured interviews were used for this process.

Researcher Journal

The researcher kept a journal to track her own perspectives, ideas, and emerging interpretations, which helped to separate the researcher's interpretations from the actual data of the participants. The researcher continued to be reflexive while acknowledging her own perspectives throughout all phases of data collection and analysis.

Peer Debriefing

The researcher discussed the process of the study, the emerging findings and raw data, and tentative interpretations with a colleague (Merriam, 2015). The role of the peer debriefing partner is to keep the researcher honest and ask questions about the methods, meanings, and interpretations (Creswell & Poth, 2018). As a result of peer debriefing, several quotes were changed to fit the categories.

Audit Trail

Lastly, just as an auditor authenticates the accounts of a business, independent judges can authenticate research findings by following the trail of the researcher (Guba & Lincoln, 1981). Thus, the researcher described in detail how the data were collected, how the categories were derived, and how decisions were made throughout the study (Merriam & Tisdell, 2016).

Methodology for Study Two: Stakeholders' Perceptions of Physical Education in Colorado

This study employed an interpretive qualitative research design to explore stakeholders' perceptions on physical education in Colorado (Merriam & Tisdell, 2016). Multiple data sources were gathered to access stakeholders' voice of physical education, including students, parents, classroom teachers, and administrators.

Research Design

Interpretive qualitative research is an approach to deriving constructs from the field by illustrating the phenomenon of interest from the gathered data (Elliott & Timulak, 2005; Merriam & Tisdell, 2016). This design allows researchers to view the world through the perceptions and experiences of participants (Merriam & Tisdell, 2016; Thanh & Thanh, 2015). Interpretive research is often used synonymously with qualitative research, and the basis of qualitative research lies in its interpretive approach to the description of social reality and human beings' experiences (Holloway & Wheeler, 2002; Merriam & Tisdell, 2016). The interpretive qualitative approach intends to understand the world as it is from the subjective experiences of individuals using meaning-oriented methods (Merriam & Tisdell, 2016; Reeves & Hedberg, 2003). This study aimed to explore stakeholders' perceptions of physical education through interviews (i.e., focus group interviews or individual interviews) and artifacts (i.e., physical education documents, policy documents, the PE for All Colorado physical education model policy [Colorado Health Foundation, 2016], and the Colorado state profile of physical education from the 2016 Shape of the Nation report [SHAPE America, 2016]). Stakeholders shared their perceptions of "typical" physical education which focused on what physical education was like prior to the global pandemic that started in March 2020.

Participants and Contexts

The snowballing method of convenience sampling was used to recruit participants (Naderifar et al., 2017; Streeton et al., 2004). After receiving the Institutional Review Board (IRB) approval (see Appendix H), the researcher asked the participants in study one to identify whether or not other stakeholders (i.e., students, parents, classroom teachers, and administrators) from their schools might be interested in participating in this study. The researcher then

contacted the school principal and the school district office to get permission to conduct this study with their students, classroom teachers, and administrators (see Appendix I). Once approval was obtained (see Appendix J), all potential participants were contacted by email with information about the study and to provide them with the informed consent form. Parents were recruited by including information about their potential involvement and communication about their child's potential involvement in the study.

Participants ($N = 28$) in this study included students ($n = 8$), parents ($n = 8$), classroom teachers ($n = 9$), principals ($n = 2$) and one assistant principal (see Table 3.3 for additional demographics). The participants were recruited from three schools in Colorado, including one elementary school, one middle school, and one junior/senior high school in urban, suburban, and rural areas (see Table 3.4. School A is a charter school (K-12), and participants from this school were all from elementary level, thus, they shared their perceptions of elementary physical education. School C is a junior and senior high school (7-12 grade), students and classroom teachers in this study were from senior high school level, and thereby their perceptions focus on high school physical education.

Table 3.3*Summary of Demographic Characteristics for Stakeholders*

Group	School	Stakeholder	Gender	Comment
Students (<i>n</i> = 8)	School A	Student 1	Male	4th grade
		Student 2	Female	4th grade
		Student 3	Female	4th grade
	School B	Student 1	Female	7th grade
		Student 2	Female	8th grade
		Student 3	Female	7th grade
	School C	Student 1	Female	10th grade
		Student 2	Female	11th grade
	Parents (<i>n</i> = 8)	School A	Parent 1	Female
Parent 2			Male	A professor of social work
Parent 3			Female	A yoga instructor
School B		Parent 1	Female	Work for a local interfaith nonprofit
		Parent 2	Male	A social studies teacher
		Parent 3	Female	Do compliance for bill collections
School C		Parent 1	Female	A homemaker
		Parent 2	Female	A secretary at a doctor's office

Table 3.3 (continued)

Group	School	Stakeholder	Gender	Comment
Teachers (<i>n</i> = 9)	School A	Teacher 1	Female	5th grade
		Teacher 2	Female	1st grade
		Teacher 3	Female	2nd grade
	School B	Teacher 1	Male	6th-8th grade technology and design
		Teacher 2	Male	6th-8th grade English
		Teacher 3	Male	6th grade English & social studies
	School C	Teacher 1	Female	10th-12th grades language arts
		Teacher 2	Male	9th-12th grade science
		Teacher 3	Female	10th-12th grade math
Administrators (<i>n</i> = 3)	School A	Principal	Female	10 years in current school
	School B	Assistant Principal	Female	14 years in current school
	School C	Principal	Female	12 years in current school

Note. *N* = 28.

Table 3.4

Summary of Demographic Characteristics for Schools

School	Grade Level	Charter School	% Free and Reduced Lunch	Setting	Region
School A	Elementary	Yes	2%	Urban	Metro Area
School B	Middle	No	36%	Suburban	North Central
School C	High	No	71%	Rural	Southeast

Note. *N* = 3.

Physical education in School A is required for all grade levels, the instruction time is 45 minutes per class period, and they meet two times per week for a total of 90 minutes per week. The class size for physical education is approximately 25 students who are all from the same classroom. Two classes take place at the same time with the gymnasium separated in the middle with a divider and each class is taught by one of the school's two physical education teachers. The physical education teacher in this study, is a licensed teacher who also coaches soccer and enjoys running marathons.

Physical education in School B is required for one semester each school year, the instruction time is 80 minutes per class lesson, averaging 2.5 times per week (alternating two and three times per week) for a total of 200 minutes per week. The class size is between 50 and 60 students as they combine two lessons together and two physical education teachers co-teach the class. Teachers employ a social emotional learning approach in their classes. School B provides an adapted physical education program for students with disabilities in which physical education teachers pair students with disabilities with typically developing students. The two physical education teachers are both licensed and coach several sports.

The physical education department in School C includes physical education and health education, and they have a graduation requirement of two semesters of physical education and one semester of health. The instruction time is 56 minutes per lesson, four times per week (the school has a four-day school week) for a total of 224 minutes of physical education per week. The class size varies between 10 and 20 students, while other classes in the school (e.g., math) average 15 students. School C allows substitution for physical education credits (e.g., outside physical activities or sports). The physical education teacher is a licensed teacher who coaches cross country and enjoys running.

Data Collection

Multiple data sources were used to explore stakeholders' perceptions of physical education in Colorado, including interviews (i.e., focus group interviews or individual interviews) and artifacts consisting of physical education documents (i.e., class schedule, curriculum documents, syllabi, budget plan, etc.), policy documents (e.g., district policy in physical education), the PE for All Colorado physical education model policy (Colorado Health Foundation, 2016), and the Colorado state profile of physical education (SHAPE America, 2016).

Interviews

Focus group interviews were conducted with students, parents, and classroom teachers, while individual interviews were conducted with administrators. Focus group interviews involve a group of people and usually seek to explore attitudes, perceptions, feelings, and ideas on a given topic (Denscombe, 2007; Merriam, 2015). The use of focus group interviews produces interactive discussion, which leads to a different type of data not accessible through individual interviews (Hennink, 2014). Beyond sharing their own perceptions of physical education, the participants listened to other participants' thoughts, which may result in new ideas about the topic within the focus group. The focus group method allows the researcher to hear from many individuals simultaneously, increasing the sample size and breadth of perspective (Merriam, 2015). It is recommended to include between four and ten participants in a single focus group (Merriam, 2015). Given the current context in the U.S. due to COVID-19, the focus group interviews in this study were conducted virtually using Zoom (Zoom, 2011). Virtual focus group interviews present the opportunity to interview participants who are widely geographically distributed (Merriam & Tisdell, 2016). Given the nature of a virtual focus group (i.e., where only

one person can talk at a time, it is harder to “add on” to discussion, etc.), the researcher limited the number of participants to between two and three for each group. Students, parents, and classroom teachers from the same school formed the groups for the interview so that they could talk about physical education at their specific school (or their child’s school). The two students in School C were scheduled for a focus group interview, yet they joined the meeting at different times, and thereby the interviews with them were two individual interviews. Further, during an individual interview, each principal/assistant principal shared their insights with respect to physical education at their own school.

The interview guide focused on stakeholders’ general perceptions of physical education and their awareness of physical education programs at the school. The interview questions for all the participants were the same or similar, but used different wording based on stakeholder group (i.e., students might be asked about physical education in their school, whereas parents would be asked about physical education in their child’s school; see Appendix K). Consent forms were sent to participants electronically and were signed before the interview (see Appendices L, M, and N). The interviews used a semi-structured and open-ended format, which allowed the researcher to probe participant responses and follow up on new topics of interests (Creswell & Poth, 2018). Each interview lasted between 45-60 minutes and was audio recorded. Audio recordings were transcribed verbatim and participants, and the school to which they were connected, were provided with a pseudonym to protect their anonymity.

Artifacts

Physical education documents, policy documents, the PE for All Colorado physical education model policy (Colorado Health Foundation, 2016), and the Colorado state profile of

physical education (SHAPE America, 2016) were collected as artifacts, which provided supplementary data for this study.

Physical Education Documents. The physical education documents from the selected schools were also collected as a data source (Creswell & Poth, 2018). After all the interviews were conducted, the researcher asked the physical education teachers at each school to share some of the physical education documents, such as such as syllabi, course schedules, curriculum documents, lesson plans, fitness test plans, quizzes for assessments, and budget plans. The physical education documents were used to contextualize the interview data.

Policy Documents. Physical education policy documents can provide further useful and meaningful material to support this study. During the interview, the administrators were asked to share any policy documents related to physical education from their school or district and the researcher searched available online resources associated with physical education on the Colorado Department of Education (CDE) website (CDE, 2016). These resources helped provide context as to what physical education should ideally look like in Colorado schools.

Physical Education for All Colorado Physical Education Model Policy. The PE for All model policy provides recommendations to support schools in improving physical education for students. Those recommendations are on topics such as instruction time, the presence of a physical education specialist, curriculum, MVPA, class size, assessment, policy, funding and so on (Colorado Health Foundation, 2016). This model policy was directly downloaded from the Padres & Jóvenes Unidos website (<http://padresunidos.org/wp-content/uploads/2016/12/PE-For-All-CO-Report-FINAL-for-release.pdf>) and was used to consider an ideal version of physical education and to consider in conjunction with what is learned during the interviews.

Colorado State Profile of Physical Education. The 2016 Shape of the Nation provides a state-wide snapshot of physical education for each state across the country based on the survey conducted by physical education coordinators (SHAPE America, 2016). The Colorado state profile provides additional supporting information about physical education programs across the state, such as the amount of physical education (i.e., minutes per week), physical education equipment and facilities, substitutions, exemptions/waivers, local school wellness policy, state standards, state curriculum, state funding for physical education programs, class size, student assessment requirements, and certification/licensure requirements for physical education teachers (SHAPE America, 2016). The Colorado state profile was downloaded from the SHAPE America website (https://www.shapeamerica.org/advocacy/son/2016/upload/SON_-Colorado_-2016.pdf).

Data Analysis

To understand each group of stakeholders' insights on physical education, the researcher analyzed the data by groups (i.e., students, parents, classroom teachers, and administrators). Each stakeholder's responses to interview questions were analyzed inductively using open and axial coding (Corbin & Strauss, 2008). Open coding intends to identify broad concepts and patterns, while axial coding makes connections between those patterns (Corbin & Strauss, 2008). The transcripts were read multiple times, significant phrases or sentences that pertain directly to stakeholders' perceptions of physical education were identified, and preliminary codes were noted in the margins. Next, the researcher finalized a list of codes, and created brief descriptions using a codebook (Creswell & Poth, 2018). Within the codebook, the researcher developed the categories by identifying patterns among the codes to interpret stakeholders' perceptions of physical education, and the categories fit together and were discrete from each other (Corbin & Strauss, 2008). Finally, four categories were conceptualized and defined in terms of their

properties and dimensions, including purpose of physical education, its impact, learning environment, and suggestions to its improvement. The findings associated with specific categories for each group of stakeholders are presented in the results.

Additionally, the researcher used document analysis to examine and interpret the artifacts (Bowen, 2009). The researcher first reviewed the documents several times, identified meaningful information related to the stakeholders' insights of physical education (i.e., purpose, impact, learning environment, and suggestion), and coded the relevant contents (Bowen, 2009). The codes from the documents supported and verified the findings from interview data in this study (Bowen, 2009). For example, the curriculum documents served as evidence to confirm the findings related to what was happening in physical education according to the stakeholders during the interview, and the policy documents verified stakeholders' awareness of the requirements and policies related to physical education in their school (or their child's school).

Trustworthiness

Trustworthiness was established using a variety of techniques, including data triangulation, use of a researcher journal, peer debriefing, and thick description. The following sections describe the detailed process for each technique.

Data Triangulation

Data triangulation allows the researcher to crosscheck evidence and findings to ensure that a full and accurate understanding of participants' perceptions of physical education is obtained (Pitney, 2004). The researcher made use of multiple and different sources and data collection strategies to provide corroborating evidence (Bazeley, 2013; Glesne, 2016; Yin, 2014). For this study interviews were conducted, and physical education documents, policy documents, physical education model policies, and the state profile of physical education were

collected. Those data sources were all considered to confirm the emerging findings (Merriam & Tisdell, 2016).

Researcher Journal

A researcher journal was kept to document personal reflections, methodological decisions, questions raised, theoretical propositions, and the evolving perceptions of the study. Using a journal ensures that the researchers' beliefs, values, assumptions, and positions do not influence the research process. The researcher kept an ongoing record in the journal from the inception to the completion of the study.

Peer Debriefing

The peer debriefer verifies that the data is collected, analyzed, and interpreted in an appropriate way, keeping the researcher honest and asking questions about the methods, meanings, and interpretations (Creswell & Poth, 2018; Pitney, 2004). The researcher discussed the process of the study, the congruency of emerging findings with the raw data, and tentative interpretations with a colleague (Creswell & Poth, 2018; Merriam & Tisdell, 2016). As a result of peer debriefing, several subheadings and quotes under students' and parents' perceptions were changes.

Thick Description

The researcher provided description to contextualize this study and allow readers to make decisions regarding transferability (Creswell & Poth, 2018; Merriam & Tisdell, 2016). This study described in detail all its components, such as the participants and the contexts under consideration (Creswell & Poth, 2018). With these detailed descriptions, readers were able to transfer information to other settings and to determine whether the findings can be applied elsewhere (Creswell & Poth, 2018).

CHAPTER IV
STUDY ONE: THE STATUS OF PHYSICAL EDUCATION
IN COLORADO

Contribution of Authors and Co-Authors

Manuscript in Chapter IV

Author: Xiaoping Fan

Contributions: Xiaoping Fan lead this study, including designing the study, collecting data, analyzing data, and writing the manuscript.

Co-Author: Jaimie M. McMullen

Contributions: Jaimie M. McMullen assisted lead author with this study throughout the whole process, including designing the study, data collection, data analysis, and data interpretation.

Co-Author: Jennifer M. Krause

Contributions: Jennifer M. Krause contributed to developing the instrumentation, data analysis, and quantitative data interpretation.

Co-Author: Brian D. Dauenhauer

Contributions: Brian D. Dauenhauer contributed to developing the instrumentation, data analysis, and quantitative data interpretation.

Introduction

Physical education programs give students the knowledge, physical skills, and confidence to engage in physical activity and sport and to be physically active across their lifetime (Houston & Kulinna, 2014; Peterson, 2013). In other words, effective physical education contributes to students' health-related fitness, physical competence, cognitive understanding, and positive attitudes about physical activity so that they can adopt healthy and physically active lifestyles. Beyond that, physical education has the potential to improve students' mental alertness, academic performance, readiness and enthusiasm for learning (SHAPE America, 2014). Overall, physical education can improve students' movement skills, physical competence, cognitive development, psychological development, and social health (Bailey et al., 2009).

Given its benefits, physical education plays a vital role in children's development, and thereby it is important for schools to improve its implementation for children's health and wellbeing. However, there is no state-wide requirement for physical education in Colorado, which is one of three states that do not require physical education at any grade level in school (SHAPE America, 2016). On the other hand, the Colorado Department of Education (CDE, 2018) has physical activity policies that require a specific number of minutes that elementary school student must engage in per month based on whether the student attends half- or full-day and the length of the school week, such as a minimum of 600 minutes of physical activity per month if the classes meet five days per week and the student attends school for a full day. In addition to physical education classes, under the CDE definition, physical activity at school also includes exercise programs, fitness breaks, recess, field trips that include physical activity, and classroom activities that include physical activity (CDE, 2016). As a local-control state, school boards are required to adopt physical activity policies at the elementary school level but are able

to create their own policies for physical education based on its context and situation. As a result, physical education programs in Colorado schools vary widely. Overall, 13% of the school districts include language in their policies that requires or recommends a specific number of minutes for physical education (Colorado Health Foundation, 2016).

As explored through anecdotal evidence and conversations with school district leadership, the instructional time for physical education in Colorado did not meet recommendations (Colorado Health Foundation, 2016). Further, the state does not permit schools or school districts to allow students to substitute other activities or apply for a waiver for physical education, while 31 out of 51 states allow such substitutions (SHAPE America, 2016). With respect to funding, Colorado has limited funding, ranking 42nd across the nation for per-student funding in 2015 (Colorado School Finance Project, 2018). Physical education was frequently not the budget priority when schools made difficult decisions in balancing their budgets, and thereby lack of funding and budget priority is the most significant barrier to the implementation of physical education in Colorado. Simultaneously, with increased pressure on academic achievement, school districts shift the budget priority toward academics and away from other areas, such as physical education, consequently, physical education has been elbowed out (Colorado Health Foundation, 2016).

The PE for All Colorado Coalition, a diverse group of organizations, was developed in Colorado under a shared commitment to provide quality physical education for children and to ensure that every child is healthy and successful, closely aligning with Society of Health and Physical Educators (SHAPE) America's Essential Elements of Physical Education (Colorado Health Foundation, 2016; SHAPE America, 2015b). The PE for All Colorado Coalition develops a model policy that includes recommendations for participating schools and school boards to

comprehensively improve their physical education programs, aiming to increase the health and wellbeing of all children (Colorado Health Foundation, 2016). The 15 recommendations include: a requirement for physical education, providing 150/225 minutes of physical education for elementary/secondary students, having an ideal class size, achieving 50% moderate to vigorous physical activity (MVPA) in physical education classes, implementing a standards-based curriculum, conducting regular assessments, providing equitable learning opportunities, offering physical education to students with disabilities, having licensed physical education teachers, having a policy encouraging physical education, receiving adequate school and district funding, and prohibiting exemptions, waivers, substitutions and withholding students from physical education in school (Colorado Health Foundation, 2016).

While the PE for All model policy provides clear recommendations for what quality physical education should look like, there is a lack of evidence about what is actually happening within physical education programs in Colorado, and thereby the gap between the recommendations and current physical education is unclear. This study attempts to fill this gap and has the potential to act as a reference or guidepost for efforts to improve physical education in Colorado, creating a baseline from which to work. Using the PE for All Colorado model policy as a guiding framework, the purpose of this study was to explore the status of physical education in Colorado. Research questions included:

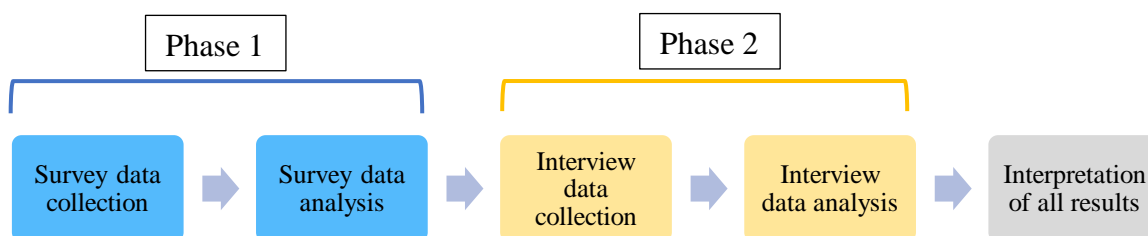
- Q1 What is the status of physical education in Colorado based on the PE for All model policy's recommendations?
- Q2 What are the facilitators and barriers to implementing physical education in schools?

Methods

A mixed method was selected to explore the status of physical education in Colorado and consisted of two phases: the administration of an electronic survey (Phase 1); and a semi-structured interview (Phase 2; Creswell, 2009). More specifically, a sequential explanatory strategy was adopted for this study, which involved a first phase of quantitative data collection and analysis and was followed by qualitative data collection and analysis in a second phase that builds on the results of the first phase. The second phase is typically used to explain and interpret quantitative results using the follow-up qualitative data (Creswell, 2009). All participants completed an initial survey (i.e., Status of Physical Education in Colorado Survey), followed by semi-structured interviews to follow up on the survey results with a sub-sample of participants who had indicated on their survey that they were willing to be interviewed (see Figure 4.1).

Figure 4.1

Procedure of Data Collection and Analysis



Participants

While the recruited population was approximately 2,000 physical education teachers, participants in this study were 201 physical education teachers ($n = 98$ elementary schools, $n = 95$ secondary schools, and $n = 8$ K-12 schools) at public schools, private schools, and charter schools. Participants were from urban ($n = 122$), suburban ($n = 54$), and rural ($n = 25$) areas in

eight regions (i.e., Metro Area, North Central, Northeast, Northwest, Pikes Peak, Southeast, Southwest, West Central). There are 248 participants initiating the survey, 201 (81%) fully completed the instrument. It should be noted that physical education teachers in pre-K-5, K-5, and K-8 were identified as elementary school teachers for analysis purposes. General demographics and characteristics of the respondents are summarized in Table 4.1.

A total of 52 physical education teachers (25.9%) indicated a willingness to participate in the interview, and ultimately 12 teachers were interviewed ($n = 5$ female and $n = 7$ male). The participants represented seven regions, including six elementary teachers and six secondary teachers with teaching experience ranging from one to 41 years, and participants teaching at 10 public schools and two charter schools. Among the 12 schools, one of the schools was an online public high school in the Metro area. Table 4.2 includes a summary of demographic characteristics for the interview teachers who have been assigned pseudonyms. It is noteworthy that 11 out of the 12 teachers indicated they had not heard about the PE for All model policy during the interview, and only one teacher was familiar with it.

Table 4.1*Summary of Demographic Characteristics for Online Survey*

Characteristics	<i>n</i>	%
Grade level		
Elementary	98	48.7
Secondary	95	47.3
K-12	8	4.0
Regions		
North Central	32	15.9
Northeast	2	1.0
Northwest	13	6.5
Southeast	1	0.5
Metro Area	111	55.2
Pikes Peak	28	13.9
Southwest	5	2.5
West Central	9	4.5
Setting		
Urban	122	60.7
Suburban	54	26.9
Rural	25	12.4
Charter School		
Yes	18	9.0
No	183	91.0

Table 4.1 (continued)

Characteristics	<i>n</i>	%
Public School		
Yes	193	96.0
No	8	4.0
Free and reduced lunch		
1-19%	59	31.7
20-39%	44	23.6
40-59%	28	15.1
60-79%	32	17.2
80-99%	23	12.4

Note. *N* = 201.

Table 4.2*Summary of Demographic Characteristics for Physical Education Teachers*

Teacher	Gender	Teaching Experience (years)	Grade Level	Charter School	Setting	Region
Jack	M	1	Elementary	No	Suburban	West Central
Julia	F	17	Elementary	No	Urban	North Central
Levi	M	32	Elementary	No	Rural	Southwest
Kinsley	F	5	Elementary	No	Suburban	Pikes Peak
Ella	F	4	Elementary	Yes	Urban	Metro Area
Judy	F	9	Elementary	Yes	Urban	Metro Area
Ryder	M	13	Middle	No	Rural	North Central
Sadie	F	13	Middle	No	Rural	Northwest
Paul	M	41	High	No	Rural	Northwest
Rowan	M	38	High	No	Rural	Southeast
Carter	M	24	High	No	Urban	Metro Area
Eli	M	8	High (Online)	No	Urban	Metro Area

Note. $N = 12$.**Data Collection**

A sequential explanatory mixed method was utilized in this study to explore the status of physical education (Creswell, 2009). The data sources included the Status of Physical Education in Colorado Survey in Phase 1 and semi-structured interviews in Phase 2 (Creswell, 2009).

Phase 1: Survey

The online survey was designed according to the PE for All model policy, aiming to obtain schools' demographics and information about the typical physical education within their

schools prior to the global pandemic that started in March 2020 (see Appendix A), and was administrated using web-based survey software tool Qualtrics (Qualtrics, 2020). Each question was followed by a box to allow teachers to provide detail for their responses. At the end of the survey, an open-ended question asked teachers to enter their emails for a 30-45 minute interview.

After receiving Institutional Review Board (IRB) approval, the researcher began data collection for Phase 1. First, data were collected using convenience sampling by initiating contact through mass emails (with access and permission to use a state-wide email list of all physical education teachers in Colorado). An email was sent to approximately 2,000 physical education teachers to inform them of this study and provide them with the link to the online survey (Appendix D). Next, targeted sampling was used by resending the email after seven days to ensure the participants were from all eight regions within Colorado and were representative of the distribution of elementary and secondary schools in the state. Ultimately the sample included 48.8% elementary schools ($n = 98$), 47.3% secondary schools ($n = 95$), and 4.0% K-12 school ($n = 8$); which corresponds with actual percentages of schools in Colorado - 58% elementary schools, and 42% secondary schools in Colorado (CDE, 2021).

Phase 2: Semi-Structured Interview

Purposive sampling was used for recruitment to participate in Phase 2 (M. Q. Patton, 2015). Follow-up semi-structured interviews were conducted with a sub-sample of physical education teachers who indicated on their survey that they were willing to be interviewed, and the researcher selected 12 participants from among them, with a similar number of physical education teachers from elementary and secondary schools. When selecting the participants, charter schools, the setting of schools (i.e., urban, suburban, rural), teacher gender and years of teaching experience (i.e., between 1 and 41 years) were considered. Participants from seven

regions were selected because no participant from the northeast region indicated interest in the interview phase. The researcher contacted those teachers by email with a consent form (see Appendix E) and scheduled a virtual interview. Meanwhile, the interview guide was created based on the initial results of the survey data. The interviews were conducted via video call (i.e., Zoom), lasted approximately 30-45 minutes, and were audio recorded. Audio recordings were transcribed verbatim, and participants were provided with a pseudonym.

Data Analysis

Following the sequential explanatory approach, survey data were analyzed during Phase 1 and interview data analysis occurred in Phase 2. The quantitative survey data were analyzed descriptive statistics through SPSS, and the qualitative survey data (i.e., the open-ended responses) and teachers' response to interview questions were analyzed using open and axial coding, and ultimately survey and interview data were combined interpret the status of physical education (Corbin & Strauss, 2008).

Survey data were analyzed with descriptive statistics (i.e., measures of central tendency) to explore the physical education programs of participating teachers with frequencies, percentages, and means, aiming to represent the schools' demographics and information regarding physical education in their schools (Huck, 2011). The items related to the status of physical education were based on the 15 components of physical education covered in the PE for All recommendations. Among those components, the responses (yes or no) for requirement for physical education, assessment, policy, district funding, and school funding were presented by percentages, and the rest (multiple-choice) were presented by means which were categorized into four levels (i.e., 0, 1, 2, 3).

Additionally, teachers' responses to the open-ended survey questions and the interview questions were analyzed using open and axial coding approach (Corbin & Strauss, 2008). During open coding, the detail of teachers' responses were read several times, identifying significant phrases or sentences that pertain directly to information about physical education's status and teachers' perceptions of facilitators and barriers in their schools, noting codes in the margins. Next, relationships among the open codes were identified in the process of axial coding in which the codes with the same meanings were combined into categories to address the status of each component of physical education as well as the facilitators and barriers of its implementation. Finally, the survey and interview data were combined to further understand the physical education programs in Colorado. The quantitative survey data provided a big picture of the status of physical education, while the open-ended responses and interview data provided additional context for the quantitative data. For example, the quantitative data were used to explain what kind of assessment techniques teachers employed in classroom, and why physical education in secondary schools was more likely to have bigger class sizes than elementary schools compared with other academic classes.

Survey Validity and Trustworthiness

Validity for the Status of Physical Education in Colorado Survey was established by expert review and a survey pilot (Tavakol & Dennick, 2011; Thorn & Deitz, 1989). Expert review is an approach that involves having experts evaluate the content validity of the instrument by assessing whether a survey is representative of all the aspects of the construct (Thorn & Deitz, 1989). Two experts in physical education survey development reviewed and revised the Physical Education in Colorado Status Survey in this study (DeVellis, 1991). Referencing the PE for All model policy and SHI, the two experts were asked to critique the readability, clarity, conciseness,

and layout of the survey. As a result, directions for participants were added at the beginning of the survey, some specific details were included for open-ended questions, the questions regarding instruction time were changed to open-ended questions from multiple-choice questions, and some of the questions were changed to four-point scale from three-point scale. In addition, the researcher conducted a survey pilot in which three physical education teachers from different levels (i.e., elementary, middle and high school) were asked to complete the survey and provide feedback on the wording of the questions and instructions. According to their suggestions, school district and school were highlighted when asking about district and school funding, and the responses for the question of substitution for physical education were revised.

Trustworthiness in this study was established through several techniques, including data triangulation, use of a researcher journal, peer debriefing, and an audit trail. Triangulating the data develops a comprehensive understanding of the problem and studied phenomena through the convergence of information from different sources (Denzin, 1970; Merriam, 2015). Data were triangulated for analytical purposes across all data sources. In this study, survey and semi-structured interviews were used for this process. The researcher also kept a journal to track her own perspectives, bias, ideas, and responses. The researcher continued to be reflexive while acknowledging her own perspectives and bias. Using peer debriefing, the researcher discussed the process of the study, the emerging findings and raw data, and tentative interpretations with a colleague (Merriam, 2015). The role of the peer debriefing partner is to keep the researcher honest and ask questions about the methods, meanings, and interpretations (Creswell & Poth, 2018). As a result of peer debriefing, several quotes were changed to fit the categories. Lastly, just as an auditor authenticates the accounts of a business, independent judges can authenticate research findings by following the trail of the researcher using an audit trail (Guba & Lincoln,

1981). Thus, the researcher described in detail how the data were collected, how the categories were derived, and how decisions were made throughout the study (Merriam & Tisdell, 2016).

Results

The results are presented in two sections and include: the status of physical education based on the recommendations of the PE for All model policy and the facilitators and barriers to its implementation.

Status of Physical Education in Colorado

The status of physical education in Colorado includes a big picture of physical education and a more detailed snapshot of specific physical education classrooms. First and foremost, the average instruction time for elementary physical education was 87 ($SD = 51$) minutes/week, falling short of the recommend 150 minutes/week, and secondary physical education was 221 ($SD = 66$) minutes/week, coming close to the recommendation of 225 minutes/week. Figure 4.2 presents the percentages derived from the responses (yes or no) for requirement for physical education and regular assessment which were closest to the recommendation, followed by district policy and school funding, with district funding having the lowest percentage of positive responses.

Figure 4.2

Status of Requirements for Physical Education, Regular Assessment, District Policy, District Funding, and School Funding

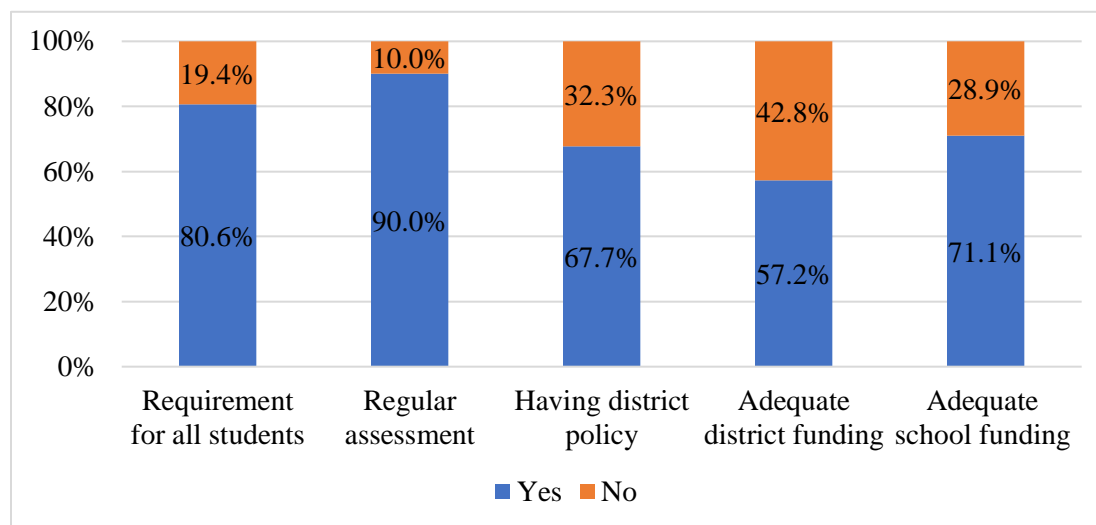
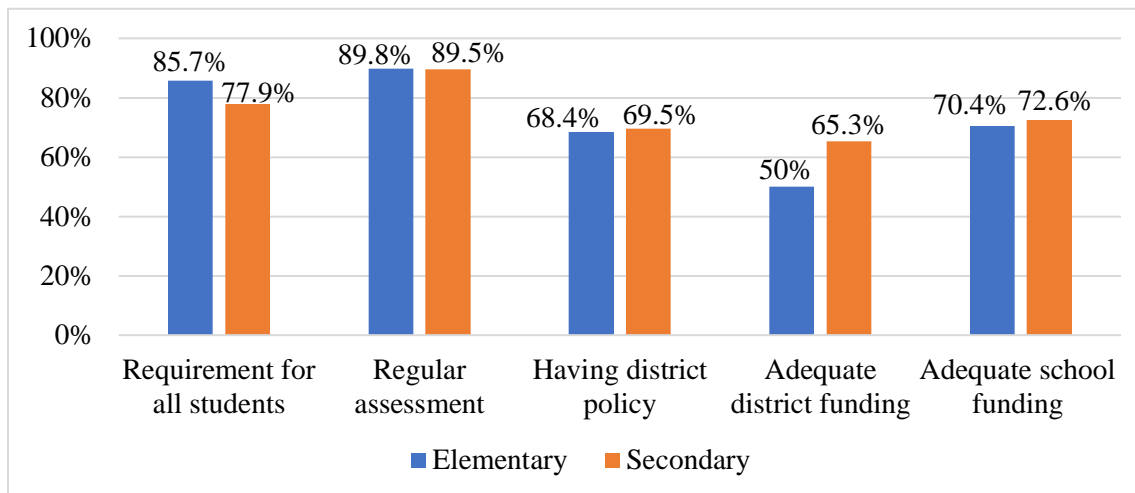


Figure 4.3 displays the percentages for elementary and secondary physical education respectively. The elementary and secondary physical education percentages for regular assessment, district policy, and school funding items are similar; however, the percentage for the requirement item is much higher for elementary physical education than for secondary physical education, and the percentage for the district funding item is much higher for secondary than elementary physical education.

Figure 4.3

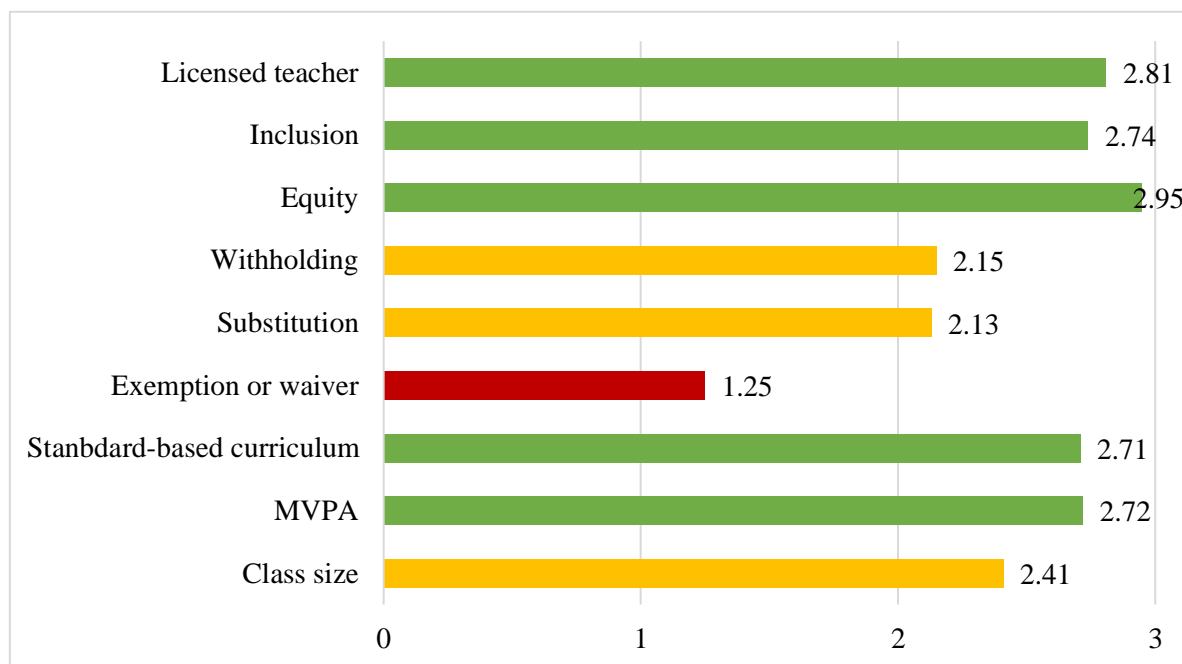
Status of Requirement, Assessment, District Policy, District Funding, and School Funding for Elementary and Secondary Physical Education



The questions related to having a licensed teacher, inclusion, equity, withholding from physical education, substitution for physical education, exemptions or waivers for physical education, standard-based curriculum, MVPA, and class size items each had four responses, categorized into four levels (i.e., 0, 1, 2, 3). Level “3” means the component fully meets the model policy’s recommendation, “2” for the most part, “1” partially, and “0” not at all (see Figure 4.4). Most schools met the recommendations for most components: the licensed teacher, inclusion, equity, standard-based curriculum, and MVPA. Some schools met the recommendations for some components: withholding students from physical education, substitution for physical education, and class size. Less than half of the schools met the recommendation for exemptions or waivers for physical education.

Figure 4.4

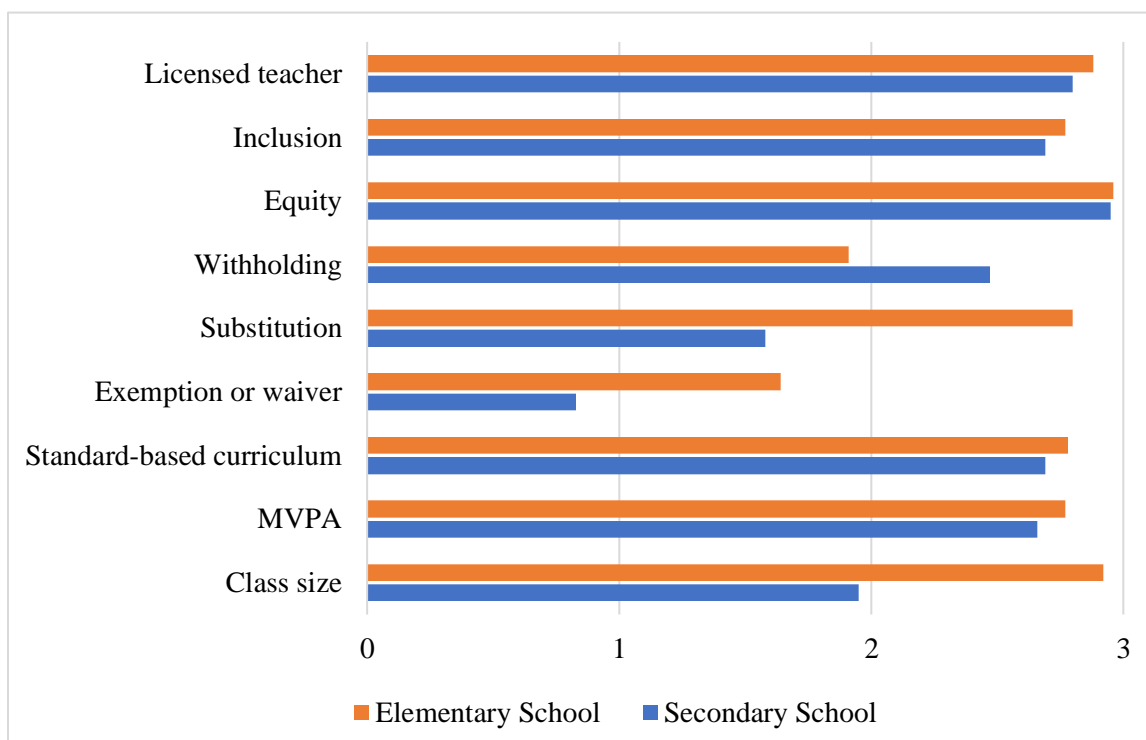
Status of Licensed Teacher, Inclusion, Equity, Withholding from Physical Education, Substitution for Physical Education, Exemptions or Waivers for Physical Education, Standard-Based Curriculum, Moderate to Vigorous Physical Activity, and Class Size



Further, Figure 4.5 represents the extent to which elementary and secondary schools meet the PE for All model policy's recommendations for each component. The extent to which schools meet the recommendations for having a licensed teacher, inclusion, equity, standard-based curriculum, and MVPA is similar between elementary and secondary physical education. Exemption or waiver for physical education, substitution for physical education, and class size items are less aligned with the policy recommendations in secondary physical education, while the withholding students from physical education item is less aligned in elementary physical education.

Figure 4.5

Status of Licensed Teacher, Inclusion, Equity, Withholding from Physical Education, Substitution for Physical Education, Exemptions or Waivers for Physical Education, Standard-based Curriculum, Moderate to Vigorous Physical Activity, and Class Size for Elementary and Secondary School



The qualitative results can provide some context for the survey results. The following will discuss each of the model policy components as percentages, along with detailed information for the components based on open-ended survey questions and interview responses.

Requirement

As reported earlier, 80.6% of teachers indicated that physical education was required at their schools, and the rest indicated that physical education was an elective class. A higher percentage of elementary schools (85.7%) than secondary schools (77.9%) had a requirement for all students. When physical education teachers were asked for more details about the requirement during the interview, most of them could not say whether it was a requirement for physical

activity or physical education. Further, they were unsure the specific number of minutes that were required for physical education.

According to the survey data and interview data, the majority of teachers indicated that physical education in elementary school was required, and it was automatically included in students' schedule. Most of the secondary schools did not require students to take physical education every semester, and students were required to take a certain number of credits for graduation. Typically, high schools required one to four semesters of physical education for graduation, and the majority required two semesters. Physical education and health were usually grouped together in secondary school, such as, two semesters of physical education and one semester of health. During the interview, Paul outlined the requirement at his high school:

As a freshman, they're required to take one semester [of physical education], and they are also required to take a semester of health. After that, they are required to take two physical education classes some time to out their sophomore, junior or senior year.

Instruction Time

The average instruction time for physical education was 87 ($SD = 51$) minutes/week for elementary school students and 221 ($SD = 66$) minutes/week for secondary school students. The instruction time for elementary physical education was far from the model policy's recommendation, while secondary physical education almost met the recommendation. On the other hand, it should be noted that elementary school required physical education for every grade level and secondary school required it for some semesters.

In the majority of elementary schools (89%), the class period for physical education lasted between 30-45 minutes, for one or two sessions per week. For these schools, physical education was one of the special classes that are rotated into the students' course schedule (e.g.,

art, music, physical education, technology, or library). For example, “Our rotation is five days per week for a week, then they rotate to music and art for one week each before returning to me. So, 12 weeks per class per year” (Survey). This is also supported by teachers’ responses to the interview questions regarding instructional time. In most secondary schools (90%), the class period was between 45-90 minutes, for three to five sessions per week when students were enrolled in a physical education class. For schools with block schedule provided physical education three times per week, and one teacher explained, “Students go to the classes three times a week for 90-minute class periods” (Survey).

Assessment

Student achievement was assessed regularly throughout the school year by 90% of surveyed schools, and the rates of regular assessment in elementary school (89.8%) and secondary school (89.5%) were similar. During the interview, teachers emphasized they used the state physical education standards for assessment. Most teachers indicated that they measured participation and attendance, the three learning domains (i.e., affective, cognitive, psychomotor), and physical fitness. For example, one teacher shared, “Students demonstrate their knowledge of physical, social, and cognitive skills through discussions, formal tests, reflections, and teacher observation” (Survey). Teachers would include students’ attendance and participation on the report cards and share with parents. Most teachers focused on social emotional learning, enjoyment, sportsmanship, and relationship building when measuring student affective learning; measuring students’ knowledge related to skills, sports, games, fitness, and health for cognitive learning assessment; checking whether students gained the skills for psychomotor learning assessment.

Fitness tests were conducted regularly, such as twice or three times a semester. The majority of schools used FitnessGram or modified FitnessGram tests, while a few schools used the President's Challenge fitness test which actually no longer exists and is now called the Presidential Youth Fitness Program. For example, some schools did "pacer, sit-up, and curl-up", while other schools did "pacer, push-up, curl-up, and a standing long jump" (Survey). With respect to the results of fitness, these teachers emphasized student growth along with goal setting. During the interview, Sadie said, "I do fitness testing throughout the year. But I grade them on their improvement. I tell students 'don't worry about being better than everyone else, just try and be better than you were yesterday.'"

Additionally, teachers employed multiple forms of assessment, including formative, summative, informal, formal, peer, and self-assessment. Most teachers focused more on formative assessment than summative assessment, and the common formative assessments included exit tickets/slips, daily quizzes, key elements checklists, proficiency scales, rubrics, progress reports, and personal fitness logs. According to survey and interview data, the primary techniques for summative assessment were pre- and post-test, unit test, and student project/presentation. Further, teachers frequently conducted teacher observation and checked for understanding as methods of informal assessment, and they incorporated written quizzes and tests as formal assessments. To support assessment, some teachers integrated technology into the classroom, such as using video to show sports, Google forms for quizzes, iPads to record video, Plickers, and pedometers and heart rate monitors for participation. Teachers noted, "I use Plickers and self-assessment daily" and "iPads and Google forms are used for more formal assessments of learning" (Survey).

Policy

When asked whether the school district has a policy encouraging quality physical education, 67.7% of teachers said “yes.” The percentages for policy encouraging elementary physical education (68.4%) and secondary physical education (69.5%) were similar. Such policies were related to instruction time, graduation requirement, teacher professional development, professional learning community (PLC), district physical education committee (e.g., curriculum, standard, coordinator), district health and wellness coordinator, district wellness committee, and so on. One teacher reported:

We have a district physical education coordinator who visits all schools and especially assists new PE (physical education) teachers. Plus, we have professional development approximately four times a year where we learn things that are research-based and proven to be successful with students. (Survey)

Charter schools and private schools operate independent from the district, and they “have the flexibility to change when needed” (Survey). As a result, they “do not get informed about a lot of the things that the regular district schools are” (Ella, Interview), and they can make their own rules sometimes.

Funding

Schools (71.1%) provided more funding than districts (57.2%) to support physical education, and school funding for elementary (70.4%) and secondary (72.6%) physical education was similar. District funding, however, was lower for elementary physical education (50%) than secondary (65.3%). For example, “Elementary received \$0-1,000, while secondary schools may receive \$1,000-2,000, even more, such as \$3,000” (Survey). Charter schools received little funding from districts for physical education. Further, one teacher from a private school reported,

“Since we are a private, independent school, we do not receive money from a ‘district’” (Survey). In some cases, the principal determines how much funding goes to physical education.

Regarding expenses, most of the teachers indicated that funding was only able to replace old and broken equipment, and it was not enough to purchase new equipment to expand the curriculum. For example, “each year we buy replacement birdies and rackets for badminton, and other replacement pieces for other sports. I have wanted to add sports like golf to our curriculum, but we do not have the money to do so,” and, “we get a set amount of 1,000 dollars for all of our 15 different PE courses, weight room, and health materials per year. I don’t think the district understands how much equipment we need and how much it costs” (Survey). One teacher even detailed a cut to their position due to a lack of funding:

My position was cut from 1.0 to .8 this year even though I have 520 students I see a week. The job is more than full time. I also know other teachers who have far less students than I do are funded at 1.0. Whenever our district makes a cut, they cut elementary PE, art and music. Many of my colleagues are worried about their job is being cut every year, and often it does happen. (Survey)

Those teachers who did not receive enough funding sought additional money to support their programs by applying for grants, fundraising, and appealing to the parent--teacher association. One teacher reported, “There is no funding to replace aging equipment or purchase new equipment. Equipment must be purchased through our parent teacher organization or grants” (Survey).

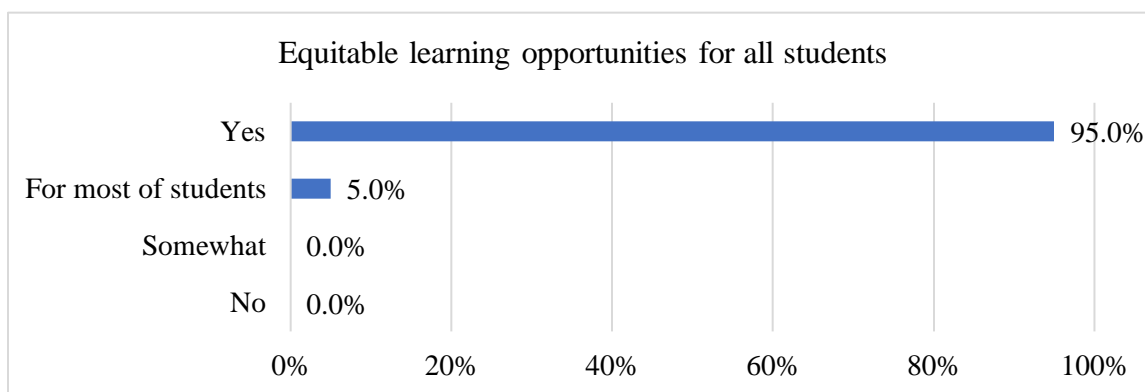
Equity

The majority of schools met the model policy’s recommendation for equity in classroom. Most of the teachers (95%) indicated that learning opportunities were equitable for all students in

physical education classes (e.g., all genders, high- and low- skilled students, students of all races, etc.), and 5% indicated this was the case for most of students (see Figure 4.6).

Figure 4.6

Equity



Many teachers ensured equitable learning opportunities were available for all students using multiple strategies, such as modifying activities and games, giving challenges, providing different equipment, conducting effort-based assessment, providing options, grouping students according to their abilities, adjusting performance standards for male and female students, teaching a variety of contents, scaffolding instruction, setting individualized goals, and using visual aids for English learners. One teacher reported:

All students are given the same opportunities. Tasks can be adjusted based on skill set and knowledge. Students set individual goals that they want to achieve. I tell the kids it doesn't matter where you start because I will teach you what you need to know. That is why each student is assessed individually as opposed to having a goal for the entire class.

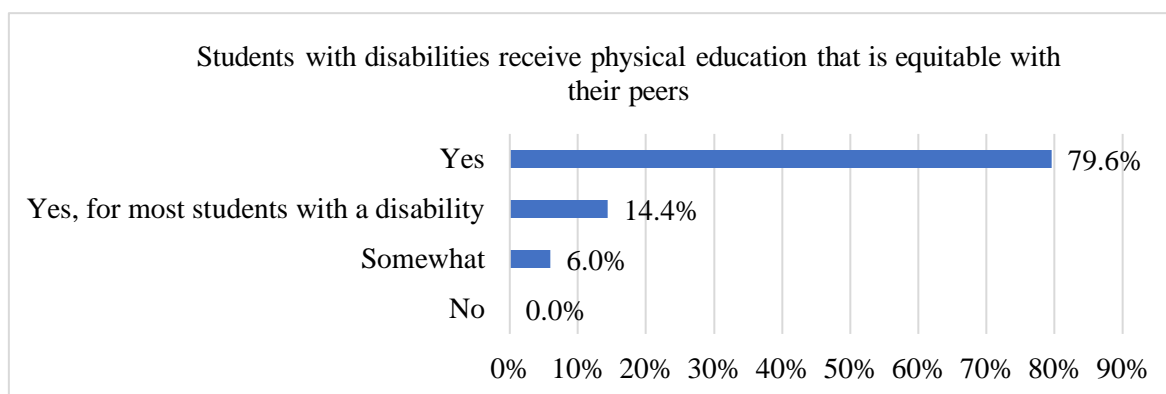
(Survey)

Inclusion

According to survey data, 79.6% of the schools provided equitable learning opportunities for students with disabilities in physical education (see Figure 4.7). Some teachers employed a variety of strategies to include students with disabilities, including peer teaching, modifying activities and games, involving paraprofessionals, accommodating rules and roles, offering physical assistance, and using adapted equipment.

Figure 4.7

Inclusion



Most of the teachers indicated schools included students with mild disabilities into the general physical education classroom and provided adapted programs for students with severe disabilities. For example, in his interview Carter said:

We will have many of our special education students in a regular physical education class. We also have adaptive class for some of our students with more severe, like they're in a wheelchair, or they're not able to physically complete a lot of the things or be successful in a traditional PE setting. We team them up a special education student with a regular education student. They will do various activities and games together. We have

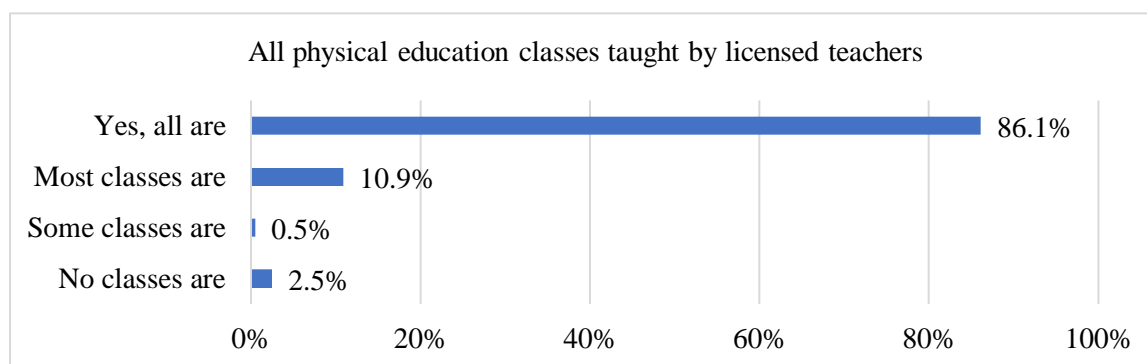
an adaptive basketball program, track program, and bowling program...one of our PE teachers teaches the adaptive class. They will co-teach with a special education teacher and pair professionals.

Licensed Teacher

When asked whether physical education classes were taught by licensed teachers who are certified or endorsed to teach physical education, 97% of the teachers indicated all or most the classes are, and only 2.5% reported that no classes are (see Figure 4.8). Some certified teachers had a Bachelor's degree in physical education as professional training, while others held a Master's in physical education with a Bachelor in other subjects (e.g., science). Further, not all physical education classes were taught by physical education teachers; some of them were taught by classroom teachers. For example, "We have a weight class taught by our counselor and one of the middle school's classes are taught by academic teachers" (Survey).

Figure 4.8

Licensed Teacher



Charter schools did not require physical education teachers to hold a teaching license in physical education but might still have high expectations for teachers. During the interview, Ella explained:

We (charter schools) have our own rules for licensing. The physical education teacher doesn't actually need a teaching license to be a teacher here. In my experience, the standard for teachers that charter school has is very, very high. I've encountered teachers who are really, really, really, really, really good at their job, but they don't have a teaching license.

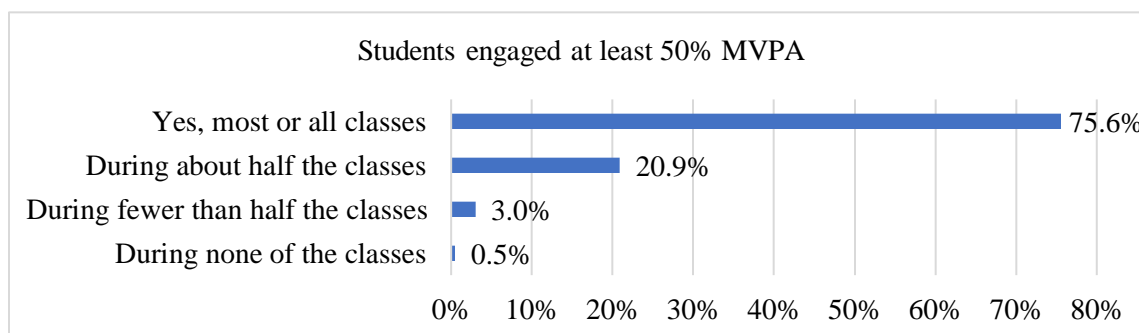
Moderate to Vigorous Physical Activity

According to the survey data, 75.6% of the teachers indicated students engaged in MVPA, with at least 50% doing so during most or all physical education class sessions and 20.9% during about half the classes (see Figure 4.9). Those teachers approached at least 50% MVPA through skill practice, gameplay, warm-up activities, fitness activities, short instructions, minimal transitions, and planned lessons. One teacher shared:

Students receive a 15-20 minutes cardio/stretching/strength building warm up consisting of locomotor skills and exercises. Instructional time lasts between 5-10 minutes. Independent practice (game play) lasts 15-20 minutes. Class norms and routines (attendance, putting away equipment, lining up) lasts under 5 minutes. (Survey).

Figure 4.9

Moderate to Vigorous Physical Activity

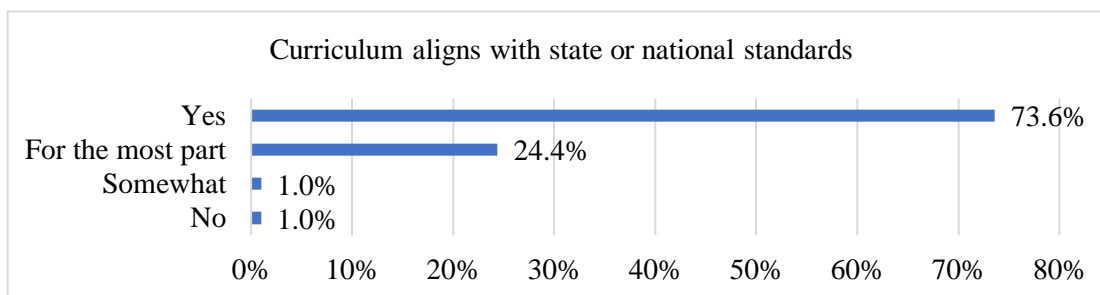


Physical education teachers had multiple techniques to measure MVPA in the classroom. Common tools included heart rate monitors, anecdotal evidence (e.g., sweaty, red face, thirsty, out of breath), pulse checking, and pedometers. One teacher reported, “Mostly observation. In the junior high and high school, we do use heart rate monitors on fitness days, which occur two days a week” (Survey).

Standard-Based Curriculum

When asked about the curriculum, 73.6% of the surveyed physical education teachers indicated their school aligned with state or national standards, and 24.4% reported that it aligned for the most part (see Figure 4.10). Most of the teachers used Colorado state physical education standards when designing their curriculum with backward designing. It should be noted that those teachers adopted standards instead of learning outcomes for the curriculum. During the interview Judy explained, “I don’t feel like I’ve had a time to read grade-level by grade-level and get that detail with my alignment.” Additionally, some districts created their own physical education curriculum to vertically align the grade levels, and the schools were supposed to use them. Sadie shared in her interview:

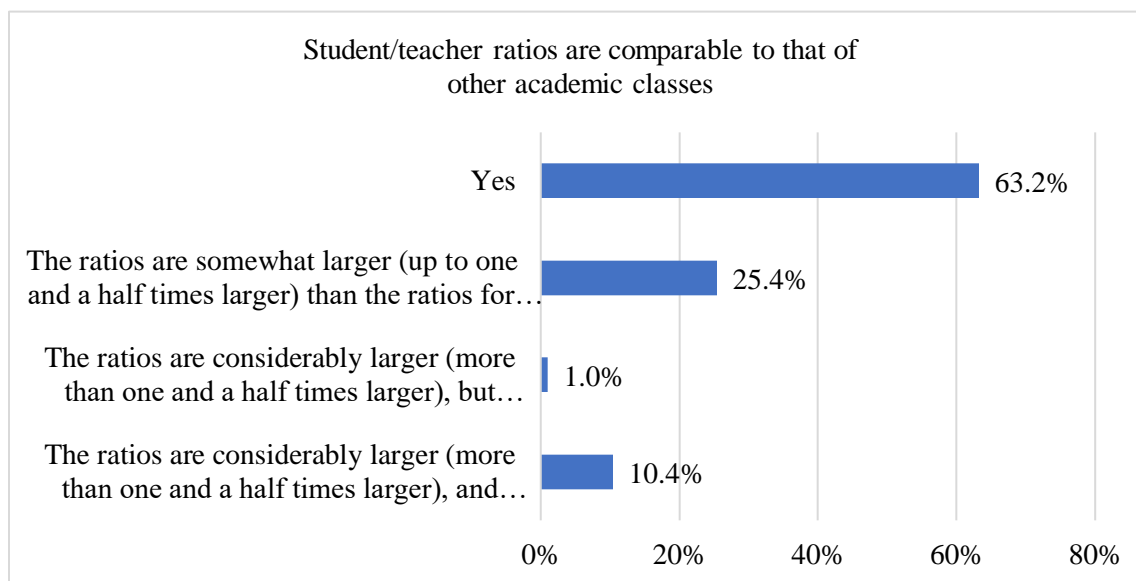
I was on the curriculum committee. The teachers created curriculum based on the standards and worked for a whole summer on creating it. The idea behind it was to be more vertically aligned. If we had a student come from a different middle school, I would know what things that seventh graders shouldn’t have already learned, and what things my students should know before they go to high school.

Figure 4.10*Standard-Base Curriculum*

In interviews the physical education teachers indicated they focus on fitness, physical skills, sports, knowledge, socio-emotional learning, health, and being physically active across a lifetime. Elementary physical education emphasized fundamental skills, while the focus of secondary physical education was lifetime physical activity and sports. Some secondary school teachers considered local community access to provide outdoor classes, such as “skiing, snowboarding, hiking, biking, sledding, and swimming” (Survey).

Class Size

According to survey data, 63.2% of teachers indicated their physical education classes had a student/teacher ratio comparable to that of other academic classes, and 25.4% indicated the ratios were somewhat larger (up to one-and-a-half times larger) than those for most other classes (see Figure 4.11). Elementary school almost met the model policy’s recommendation for class size, and secondary school met the most part (see Figure 4.5)

Figure 4.11*Class Size*

For most elementary schools, the class size was 20-30, which was comparable to that of other academic classes. Students in those schools attended physical education with their homeroom class, and occasionally two classes would be combined into one physical education class due to a lack of a substitute teacher. For a few elementary schools, the class size was consistently large, with two classes together for every physical education class. One teacher noted, “There are two classes of 30-31 students per grade (1st-6th grade) and both classes are combined for PE, so there are potentially 62 students in a class” (Survey).

Further, the class sizes for most secondary physical education were generally bigger than the ones for other academic classes according to survey, and the number of students varied widely, ranging between 8-55. Many classes were large, while a few had single-digit numbers of students. The class size depended on whether physical education was an elective class and how the other electives were scheduled. One high school physical education teacher reported:

You may see up to 40 students in the physical education class, and this usually is a 9th grade core PE class, which must be passed. An adventure bound class may have only 12-20 students in order for safety requirements for the climbing wall. The net and target classes usually have between 24-32 students, while the invasion and field classes normally have 25-35 students. Our weightlifting classes and personal fitness classes have between 27-35 students per section. Our Yoga and self-defense normally have between 22-32. (Survey)

Withholding from Physical Education

When asked whether schools allowed the withholding of students from physical education for academic or disciplinary reasons, 64.7% of physical education teachers indicated no, 21.4% occasionally, and 13.9% yes (see Figure 4.12). Those teachers explained, “District policy states PE may not be withheld for these reasons, but occasionally teachers are unaware of the policy and bring students in late” (Survey). Withholding students from physical education mainly occurred in elementary school due to incomplete work, tests, reading or English intervention, behavioral reasons, and discipline issues.

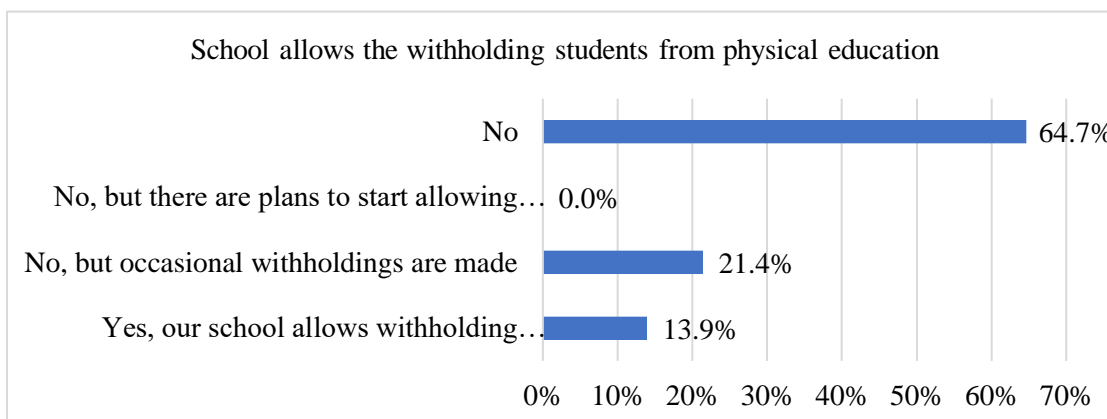
Many physical education teachers emphasized that withholding students from their classes rarely happened. Classroom teachers likely kept students without being aware of the policy, Julia shared:

I have had a few conversations with classroom teachers in the past. It is not a frequent thing, but it’s happened. I’d say no more than five times in the 13 years I’ve been there. So, it’s not all the time. But it’s really a matter of me telling them about the policy and explaining to them the importance. This is my class, this is content they need to learn.

And it's also district policy, so they just are aware of it. Once I have the conversation, I never had the problem again.

Figure 4.12

Withholding from Physical Education



Meanwhile, physical education teachers who had previous classroom teaching experience in other subjects were more likely to understand classroom teachers' decision to withhold students from physical education, and they would work with classroom teachers on how to help students' learning. Julia continued, "I am flexible and work with classroom teachers for the best solution for each student".

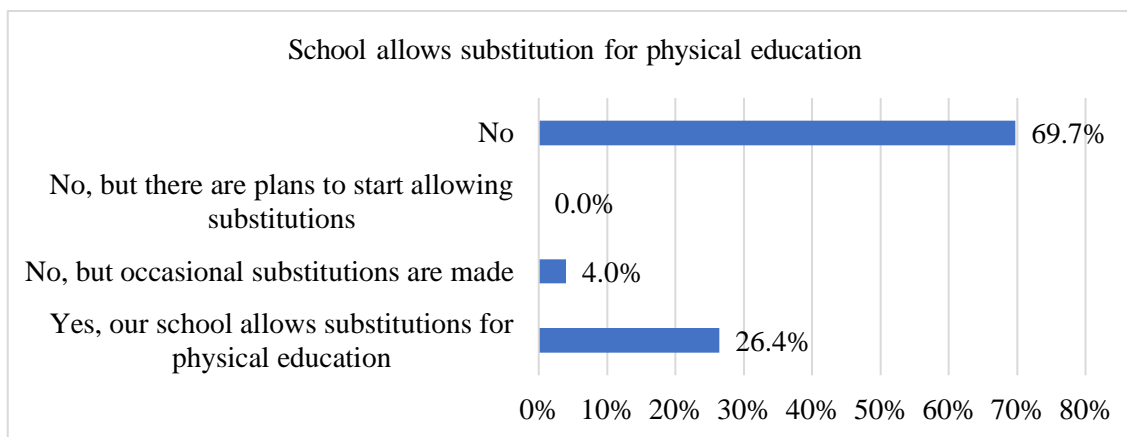
Substitution for Physical Education

The surveyed schools partially met the model policy's recommendation for substitution for physical education. There are 30.4% of teachers indicating their schools allowed or occasionally made substitutions of other activities for physical education class time or credit requirements (see Figure 4.13). Substitution for physical education mainly occurred in secondary schools, in which physical education class or credit can be substituted for by a variety of activities and sports, such as interscholastic sports, the Reserve Officers' Training Corps

(ROTC), cheer team, marching band, health class, foreign language class, and outside physical activities or sports (e.g., gymnastics, dance, skating, horseback riding, etc.). One teacher shared, “We allow all sorts of substitutions for PE. Kids get PE credits for sports, band, cheer, and other options” (Survey). On the other hand, some schools had limitations on substitutions: “Students can earn 0.5 credits for participating in a school sport. They can’t earn more than 0.5 credits, even if they participate in more than one sport or for multiple years” (Survey).

Figure 4.13

Substitution for Physical Education



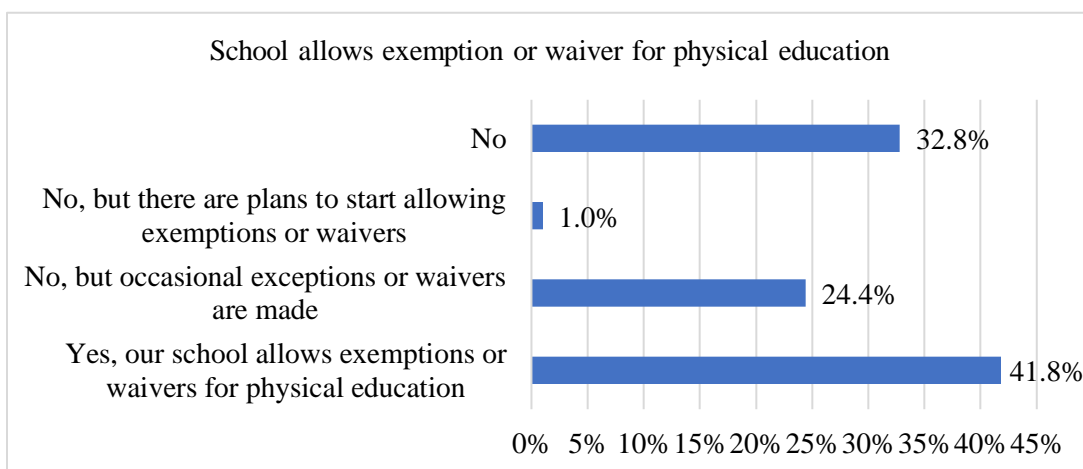
Exemptions or Waivers for Physical Education

Exemptions or waivers for physical education was the item that least aligned with the model policy. Figure 4.14 indicated 32.8% of the schools did not allow exemptions or waivers for physical education (e.g., for religious reasons, for health reasons, etc.), while 41.8% did. Secondary physical education was more likely to be waived than elementary physical education (see Figure 4.5). Those schools allowed exemptions or waivers for physical education mainly for health reasons, for which doctor notes or parental permission were needed, and usually it was for

a short period of time. One teacher reported, “the majority of waivers I receive are for health reasons (e.g., broken arm, feeling ill, concussion, asthma, etc.)” (Survey). Waivers for physical education were allowed at some schools, but they were rarely used, and most physical education teachers would either make alternative plans for those students who were not able to participate in the class or have them sit out. During the interview, Kinsley said, “We don’t really run into a lot of them in an elementary school. They come in with a cast on their foot. I know that they can’t run. So, we think of an alternative job for them in that class.”

Figure 4.14

Exemptions or Waivers for Physical Education



Facilitators and Barriers to the Implementation of Physical Education

From the analysis of survey data and teachers’ responses to interview questions, six facilitators and seven barriers emerged regarding the implementation of physical education at schools.

Facilitators to the Implementation of Physical Education

The six facilitators included: requirements for physical education, adequate facility and equipment in secondary schools, administrator support, parent support, access to community resources, and professional development for physical education teachers.

Requirement for Physical Education. Physical education was required for the majority of the schools (80.6%). Physical education was inserted into students' course schedules in most of the elementary schools and was required for graduation in some secondary schools. Kinsley reported:

Physical education, it is a requirement. So, K-fifth have to receive, and there's a certain number of hours per month that they have to receive. And then middle and high school, they have to receive so many physical education credits in order to graduate, so student can fail in high school if student don't have PE credits.

Adequate Facility and Equipment in Secondary School. Most secondary schools had basic facilities and equipment that allowed physical education teachers to create a positive learning atmosphere and provide students with a variety of learning experiences. Those teachers had their own gym and basic equipment for the class, and some of them were offered a weight room as well. During the interview, Paul said:

We are pretty lucky. Every school or district has a swimming pool, two gymnasiums and separate waiting room, six tennis courts, two or three grants fields. Like I said equipment wise, if we don't have the money to buy it, there's always a way to find that money. So, we're pretty lucky.

Administrator Support. Most of the physical education teachers indicated administrators (i.e., principal, assistant principal, superintendent) were supportive of physical

education at their schools. As Roman said, “Both the assistant principal and the principal support PE. Our superintendent is very physically active, he does marathons and everything, so he supports the physical education.” As Paul explained, the superintendents in the district would help, “set up the guidelines and procedures and things like that for physical educators to follow” regarding the physical education curriculum. Further, some school principals helped seek out funding to support physical education. Carter reported:

We’re site based as far as our principal has given a lump sum of money to distribute how she sees that in our building. And that’s where we’re pretty fortunate she values what we do. We’re pretty fortunate, when we need something, our principal is very supportive of us and helping us find the money.

Parent Support. Parents would provide funding and purchase equipment for the physical education program at their children’s schools, which allows teachers to extend their curriculum. Jack said, “A couple of the parents bought equipment for the kids. I was running low on soccer balls and footballs. So, we had a couple parents from the parent-teacher organization buy stuff like that.” Similarly, Julia reported:

Our parent teacher organization (PTO) always gives each teacher \$150. But then if there’s a big-ticket item like they paid for my rock-climbing wall. I have a traverse wall. So, the PTO paid for that rock wall to be installed.

Access to Community Resources. Some physical education teachers were able to access community facilities, received support from the community, and gained benefits from an active community. First, the available facilities allowed physical education teachers to expand their curriculum outside of school. For example, Paul shared, “we go over to the golf course that is nearby. We go to an archery range and a climbing area. So, we typically leave the school to go

use the recreational facilities in the valley here.” Further, physical education teachers received community support for some of the outdoor curriculum. Levi explained:

I get a lot of help from community. For example, water safety, I need more than me in the pool, at one time with 24 kids. I need some help from the community. So, I asked some friends of mine to help out, and it can’t happen without support like that. And to use the pool, the community donates that pool time. We don’t pay for that, we just get the kids there, and they’ve blocked off that time. Same with skiing, I take the kids to the forest to a trail that has been groomed, and we break kids into groups. So, the community of skiers that from a club helps out with that and the grooming.

Additionally, an active community was beneficial for students learning in the physical education classroom. With an active environment, students applied their skills and participated in various activities and sports outside of school. Ryder said:

I am very fortunate to be in a community that is very, very active and so you know extracurricular sports are big out here. So, majority of these kids are doing football or volleyball or basketball or one or more of those things. It’s nice to be in a community where like that isn’t such an issue because we are, for the most part, there’s accessibility to those things out here.

Professional Development for Physical Education Teachers. During the interview most of the physical education teachers indicated that they received a variety of opportunities for professional development from their schools and/or districts, such as a professional learning community, workshops, training, conventions, and induction programs. Paul said, “we try to go to attend seminars and conferences where we continue to increase our knowledge and learn about new ways and new activities to teach. We try to go to at least one conference or seminar each

year.” Similarly, Kinsley was involved in a community of physical education teachers that supported each other:

I meet with other elementary school PE teachers once a month, and we bring our ideas and our thoughts and our strategies together and share them amongst each other. And then we go back to our rooms and we try those new things or try those new ways. And then some of us, actually another PE teacher from another building come to our building and watch what we do and give us feedback.

Barriers to the Implementation of Physical Education

While these facilitators contributed to the implementation of physical education, there were seven barriers hindering its implementation, including: negative perceptions of physical education, marginalization of physical education, limited instruction time in elementary, large class sizes in secondary, lack of attention to policy, limited funding, and lack of a rubric for teacher evaluation.

Negative Perceptions of Physical Education. The mindsets people have toward physical education was one of its biggest barriers that people lack an understanding of the importance of physical education for student’s entire education. Ryder said, “I would hope that people understand that PE is important, because without movement, none of the other content areas can truly function. They need movement so that they can do better in math, science, reading, and writing.” Teachers indicated that most people viewed physical education as recess rather than as part of education in school according to interview data. Sadie, for example, reported physical education was not valued at her school:

The biggest barrier is that you're the subject which isn't always appreciated. I have co-workers, and I always feel like they don't value it. They'll come right in the middle of a class, and ask 'can I borrow some basketballs', and I'm like what if I went in the middle of your class and just wanted to borrow a whole set of books. It interrupts your whole teaching. I think in their mind, I'm supervising recess... People will say, a lot of times, 'Oh, I'd love to be a PE teacher when I retire.' And I'm like, no, that's my career, I went to school for that. So, I think that's the biggest barrier is just that people are ignorant and don't understand that it's also teaching, it's just a different type of teaching... I had a student asked me, 'Do you ever want to be a real teacher?'

Further, some teachers perceived that parents believed that physical education was just physical activity or sports and that their children only exercised and played games in the physical education classroom. As a result, some parents would request substitutions for their children's physical education classes, which frustrated physical education teachers:

We have some parents that are like my student doesn't need to take PE because they do dance five days a week. And I'm like, I don't just teach like how to be active. We teach those life skills like teamwork, communication, strategy and all this stuff. And so that's my biggest frustration is that like a lot of people don't see they might see the value in PE as far as like it's important to get exercise, but they literally think that is where it ends. And that if their kid is getting exercise at a sport practice, they don't need PE because they can't possibly learn anything from the teacher or the class. (Sadie, Interview)

Marginalization of Physical Education. Physical education was not considered a priority compared to other subjects in schools. When allocating funding, principals would first

ask classroom teachers what they need, and then ask physical education teachers. As Judy shared:

I know almost all the time they're always asking classroom teachers 'what do you need? Do you need different chairs? Do you need wobbles tools you need headphones?' And then there's not the same translation into PE. A couple examples, I've been wanting to get a traverse rock--climbing wall since I got the job seven years ago, and our school has never figured out how to save up enough money in the budget.

Marginalization of physical education was also represented by its status in school. If schools needed to cut the budget or remove teachers, they would first consider special class teachers (art, music, and physical education). Eli shared, "the school has told me that as long as it's an elective, if there's budget cuts or they need to remove a teacher, and it will be art, music, or PE."

Limited Instruction Time in Elementary. Physical education was a special class in elementary school, and was rotated with approximately three specials (e.g., music, art, physical education). Average instruction time for elementary physical education was 87 ($SD = 51$) minutes/week, while the model policy recommends 150 minutes/week. One teacher shared, "Typically, students attend PE class once a week. Depending on the type of schedule my school is operating on, we could see some classes twice a week (rotating schedule). The average is once a week for 45 minutes" (Survey).

Large Class Sizes in Secondary. Only 34.7% of secondary teachers indicated that physical education classes had student/teacher ratios comparable to those of other academic classes at their schools; in contrast, 65.3% of secondary physical education classes had larger class sizes than other academic classes. Students in secondary school had the chance to choose

what classes to take for physical education credits, and thereby there were different numbers of students in different classes. For example, “Swimming is capped at 30 students, strength classes are capped at 35 (upper-level classes with 40 by request), and general activity classes are capped at 35, the team sport classes have 48 kids” (Survey).

Lack of Attention to Policy. Many physical education teachers indicated there were policies against withholding students from physical education at their schools that classroom teachers might not be aware of. Some of the classroom teachers kept students in their classrooms for incomplete work or tests, which led to students being late for physical education classes. Further, the CDE prohibits the substitution of non-instructional physical activity for standards-based physical education instruction. However, most secondary schools allowed the substitution of other activities (e.g., interscholastic sports, ROTC, etc.) for physical education class time or credit requirements. Judy said:

We allow substitutions for PE. So, if you are on like a competitive swim team, but our school does not offer swimming. You can take your swimming hours and translate them into PE credits. So, you don't have to take a PE class because you are showing you get activity somewhere else.

Limited Funding. There was a lack of school and district funding available with which to purchase big equipment for physical education, especially in elementary schools. With the funding from school and district, most of the physical education teachers were only able to replace their old equipment, and it was difficult for them to include new curriculum into program. Judy shared:

We have 600 kids in our elementary school. They come up twice, so I'm teaching 1,200 students basically in a week. Our equipment gets used hard. Our soccer balls are always being kicked, and our basketballs are getting used. It's just really hard. So, 2,000 [dollars], it does a pretty good job to replenish what's used, but it's not enough to go and expand our curriculum. I would love to have a climbing wall. I would even love to have strider bikes to teach some of the bicycle safety and road symbols. But that 2,000 [dollars] is only enough to replace what we already have.

Lack of a Rubric for Teacher Evaluation. Principals use the same rubrics to evaluate all teachers at their schools, including physical education teachers. During the interview, all the physical education teachers indicated the classroom for physical education was different with other subjects, and thereby stated the evaluation for physical education teachers should be modified. Jack said:

I don't like that because we obviously teach very, very differently...PE is a whole different animal than the classroom. So that's kind of, I guess, bums me out a little bit, but at the same time, I get the fact that they have to kind of keep everything district wide and standard.

In conclusion, the results demonstrate the status of physical education and the facilitators and barriers to the implementation of physical education in Colorado according to physical education teachers' understandings through the survey and semi-structured interviews.

Discussion

As a local-control state, Colorado allows school districts to create their own policies and requirements associated with physical education (Colorado Health Foundation, 2016). The CDE requires 150 minutes per week of physical activity for elementary students, but not a certain

amount of instructional time in minutes or hours for physical education (CDE, 2018). Consequently, only 13% of the school districts included language in their policies that requires or recommends a specific number of minutes for physical education (Colorado Health Foundation, 2016). Therefore, the instruction time for physical education in both elementary and secondary schools varies widely. The average instruction time for physical education was 87 minutes/week in elementary school in this study, which falls well short of the model policy's recommendations. Therefore, legislation requiring specific minutes/week for physical education instead of physical activity is recommended (van der Mars, 2018). With increased instruction time, students will have more opportunities to learn a variety of knowledge and skills, and teachers can get to know students better to build stronger relationships with students (Barnett, 2009; Chen, Mason, et al., 2016).

Colorado does not have a credit-based graduation requirement for physical education (SHAPE America, 2016), however, most secondary schools in this study did require a certain number of credits or semesters for graduation. When secondary school students were enrolled in physical education class, they participated in physical education for an average of 221 ($SD = 66$) minutes/week, which almost met the model policy's recommendation of 225 minutes/week. On the other hand, some secondary schools allowed the substitution of other activities (e.g., interscholastic sports, ROTC, cheer team, marching band, etc.) for physical education class time or credit requirements, despite the fact that the CDE has policy that a school shall not substitute non-instructional physical activity for standards-based physical education instruction (CDE, 2018). Therefore, one of the challenges for secondary physical education is the implementation of policy in school, and the support and commitment of the principal contributes to the effective implementation of policy (Green, 2008; Rainer et al., 2012).

Funding was frequently cited as a barrier in this study, a fact that directly impacts hiring full-time physical education teachers, purchasing equipment, providing facilities, and expanding the curriculum (Barroso et al., 2005). Most of the teachers in this study indicated that annual funding met their basic needs, such as replacing the old balls and birdies. Further, secondary physical education received more funding than elementary, which impacted access to big equipment and facility needs in the elementary schools. Inadequate physical education facilities restrict the quality of instruction and result in less learning opportunities for students (Morgan & Hansen, 2008a; Rainer et al., 2012). Besides, school districts are remaining under increased pressure to improve academic achievement, which leads to a shift in budget priority toward academics and away from other areas, such as physical education (Colorado Health Foundation, 2016). Teachers should provide and advocate for quality physical education to promote student health and wellbeing, which can lead to the support from principals who play a fundamental role in the implementation of physical education within their schools (Lounsbery et al., 2011; Rainer et al., 2012). For instance, principals would likely consider health-related fitness outcomes in their policy-/decision-making process (Suminski et al., 2019). Additionally, teachers can and should seek funding from outside of the school (e.g., grants, fundraising) and ask for support from parents and the community (Coulter et al., 2020).

The class sizes for physical education in secondary schools were consistently larger than those of other academic classes, which could influence student learning opportunities during class (Morgan & Hansen, 2008a). Potential consequences of large class sizes include decreased instructional time due to management issues, insufficient equipment and activity space, decreased practice opportunities resulting in a slower rate of learning, decreased time spent on activities during class, decreased individualized instruction, and increased opportunity for off-

task behavior (National Association for Sport and Physical Education, 2006). These consequences decrease teacher motivation towards the teaching process (Morgan & Hansen, 2008a). Schools should attempt to control the number of students in physical education classes, and physical education teachers need to learn specific strategies for teaching larger class sizes (Morgan & Hansen, 2008a).

The prevailing negative mindset towards physical education is one of the biggest barriers to the implementation of the model policy (Sheehy, 2006). Some teachers in this study indicated that people did not value physical education as part of education and that they viewed it as more similar to recess. Therefore, it is critical for physical education teachers to advocate for the importance and benefits of physical education for students' academic learning and health (Bott & Mitchell, 2015; Erfle & Gamble, 2015; Ericsson, 2008; Milosis & Papaioannou, 2007). To do that, they can show people that physical education provides students with the knowledge, physical skills, and confidence to be physically active across their lifetime (CDC, 2015). Further, teachers can use existing research to demonstrate that physical education improves students' physical fitness, physical activity levels, mental alertness, social skills, appropriate behaviors, and academic performance (Bailey et al., 2009; Houston & Kulinna, 2014; Peterson, 2013). Additionally, advocating for physical education could start with teachers' quality of teaching by using a holistic approach to develop the student as a whole person (Dyson, 2014). Teachers can also implement a community-based physical education program to allow students to apply what they have learned in physical education in their communities outside of school (France et al., 2011). In turn, the principal, classroom teachers, students, parents, and community may value and support physical education.

Teacher preparation programs contribute to developing highly qualified physical education teachers (Napper-Owen et al., 2008), and most of the teachers in this study were licensed teachers and received professional training. As a result, the majority of the teachers in this study delivered a standards-based curriculum, incorporated local-based activity, achieved at least 50% MVPA, provided equitable learning opportunities, included students with disabilities, and regularly measured student learning. For example, the teachers focused on physical skills, knowledge, social skills, and fitness for the promotion of student health and participation in lifetime physical activity. This aligns with the recommendations from SHAPE America (2014) which state that a physical education program should contribute to students' health-related fitness, physical competence, cognitive understanding, and positive attitudes that allow them to adopt healthy and physically active lifestyles. When using the standards, teachers should move further to teach toward the grade-level outcomes through implementing effective instructional practices (Avery & Rettig, 2015). Additionally, while most physical education classes were taught by licensed teachers, some of them received a Master's in physical education with a Bachelor in other subjects, and thereby they may lack professional-training experience within a professional preparation program, such as pedagogical knowledge, content knowledge, field experiences, and professional dispositions (Napper-Owen et al., 2008). For these teachers, schools or districts should provide additional opportunities for professional development (Lynch & Soukup, 2017; Napper-Owen et al., 2008). Overall, teachers should continually seek new information to stay current by participating in professional learning communities, workshops, training, conventions, and so on (Parker & Patton, 2017). When offering these opportunities, schools and districts should make sure to tailor them especially for the needs and interests of physical education teachers (K. Patton & Parker, 2015).

Limitations

It is important to consider the limitations of this study. The findings of this study represent information from 201 survey responses, representing 51 school districts. There are approximately 2000 schools and 178 districts in Colorado, so one limitation is that the study had a small sample size. Another limitation is an uneven distribution for geographic regions of the respondents. Among those surveyed, 55.2% of the schools are from the metro area, only one school is from the southeast, two from the northeast, five from the southwest, and nine from west central. There was also no teacher from the northeast area who participated in the interview. Additionally, 60.7% of the responses are from urban areas, and only 25% are from rural areas. Therefore, the findings of this study may more accurately represent the status of physical education in urban areas. The last limitation is the threat to internal validity due to the nature of self-reporting survey data. Physical education teachers completed the Status of Physical Education Survey, and they may not be able to assess their own physical education programs accurately. As a result, physical education teachers may select the better response rather than the most accurate response, especially on items such as providing equitable learning opportunities for all students and achieving 50% of MVPA.

Conclusions and Implications

The PE for All model policy provides clear recommendations for the implementation of quality physical education, and but there is a lack of evidence about what is actually happening in physical education in Colorado. This study provides a snapshot of the current status of physical education, addressing how the schools have responded (or not) to the PE for All model policy. Most physical education programs met the recommendations for most components, while some programs only partially met several components. Further, the study explores six facilitators

and seven barriers for its implementation. In conclusion, the following list includes general implications based on the results of this study for the implementation and improvement of physical education in Colorado:

- Show policymakers/decision-makers the price of equipment to help them understand that physical education equipment is expensive.
- Advocate for the impact of physical education on students' health and academic achievement to change people's mindsets.
- The Colorado Department of Education must spend time advocating for the PE for All model policy so more physical education teachers realize what quality physical education looks like.
- A state policy must state minimum instruction time for physical education both in elementary and secondary schools.
- Schools must emphasize the policy encouraging quality physical education.
- Schools must modify teacher evaluation rubrics for physical education teachers so that they can be accurately assessed.
- Physical education teachers should emphasize students' social-emotional learning and mental health in the classroom.
- Physical education teachers can seek support and funding for physical education from principals, parents, and communities.

CHAPTER V
STUDY TWO: STAKEHOLDERS' PERCEPTIONS OF
PHYSICAL EDUCATION IN COLORADO

Contribution of Authors and Co-Authors

Manuscript in Chapter V

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Contributions: Xiaoping Fan lead this study, including designing the study, collecting data, analyzing data, and writing the manuscript.

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Contributions: Jaimie M. McMullen assisted lead author with this study throughout the whole process, including designing the study, data collection, data analysis, and data interpretation.

Introduction

The United Nations Educational, Scientific and Cultural Organization (UNESCO, 2015) defined physical education as planned, progressive, active, inclusive, peer-led learning for children in kindergarten, elementary and secondary schools. There are five benchmarks of physical education, including curriculum, cross curricular/external links, learners, assessment, and research (UNESCO, 2015). The goal of physical education is established according to national contexts and needs. Many European countries, such as Ireland, Switzerland and Finland, describe physical education using a holistic view which combines health, wellness, and physical activity. Similarly, in Australia, the intention of physical education is to enhance children's health and wellbeing (Australian Curriculum, 2019). In England, physical education programs aim to inspire children to succeed in competitive sport and other physically demanding activities so that they become physically confident, which supports their health and fitness (Griggs, 2012). In New Zealand, the focus of physical education is the well-being of the children themselves and of the society by learning in health-related and movement contexts (New Zealand Ministry of Education, 2014). Each province of Canada determines its physical education curriculum, and the general aim is to acquire knowledge, skills, and attitudes for a healthy, active lifestyle through physical activity (Kilborn et al., 2016). China shifted the focus of physical education on health and wellbeing from sports performance-oriented curriculum, and the current physical education program reform emphasizes the promotion of physical education to improve students' physical health (The State Council, 2016).

The nature of modern physical education in the U.S. has shifted, moving from a focus on physical fitness in the first half of the twentieth century, to more performance-related considerations following World War II, to health and well-being most recently (Mechikoff &

Estes, 2019). Physical education is currently viewed as the foundation of children's health and active lifestyles (SHAPE America, 2014). SHAPE America (2014) recently adjusted the national physical education standards according to the current needs of students, and now has a more central focus on the health and social emotional learning of children. The development of a definition and the establishment of key components of physical education has changed over time and in response to curricular reform. According to newest edition of the national standards, the purpose of physical education is to develop individuals' competence and confidence to a lifetime of healthful physical activity (SHAPE America, 2014). Further, SHAPE America (2015b) describes the essential components of a physical education program to include: (a) policy and environment, (b) curriculum, (c) appropriate instruction, and (d) student assessment. In short, an effective physical education program has a sequential and comprehensive curriculum, provides developmentally appropriate instruction practice, and conducts regular assessment with supportive policy and environment. Additionally, it has been confirmed that physical education plays an important role in students' health-related fitness, physical competence, cognitive understanding, positive attitudes about physical activity, mental alertness, academic performance, readiness and enthusiasm for learning (SHAPE America, 2014).

Understanding the nature of physical education is the foundation of implementing quality physical education within schools. While physical education is supposed to be implemented as described in the SHAPE America national standards, it is important to consider stakeholders' views on physical education. Considering different groups of stakeholders' perceptions contributes to understanding what is actually happening during physical education and can act as a reference point when implementing and improving physical education program. Students tend to believe physical education is important to their overall education and have positive attitudes

toward physical education (Colquitt et al., 2012; Couturier et al., 2005; Georgakis, 2018; Kadir & Özkurt, 2016). Similarly, parents, classroom teachers, and administrators demonstrate positive perceptions of physical education (Barney & Deutsch, 2009; Graham, 2008; Sheehy, 2006; Stewart & Green, 1987; Yaldız & Özbek, 2018). Compared to the available research on students' perspectives, there is a lack of research with regard to perceptions of parents, administrators, and classroom teachers on physical education, and thereby more research is needed to explore those stakeholders' insights of physical education.

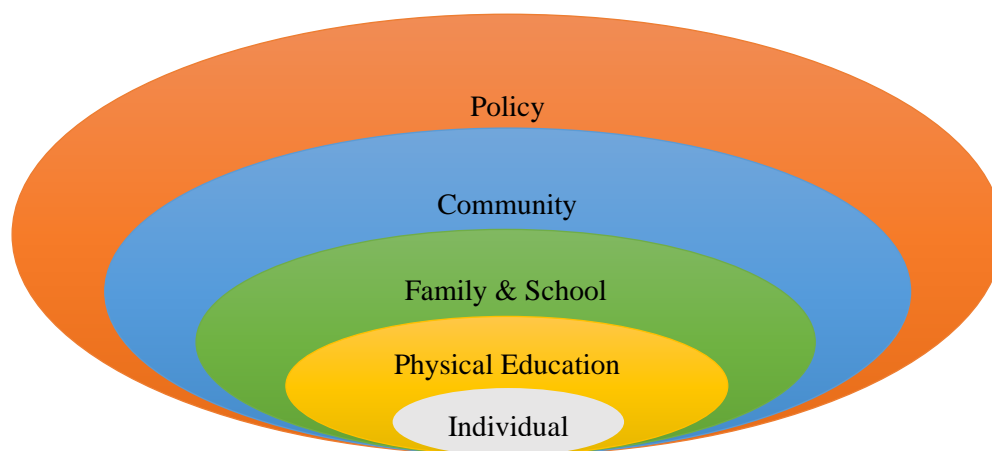
Theoretical Framework

Using a social ecological lens, this study sought to more comprehensively understand the current state of physical education in Colorado schools (Bronfenbrenner, 1992). The social ecological model is a theory of human development, illustrating the interactions between humans and their surroundings to understand how complex networks of factors affect individuals' development (Bronfenbrenner, 1992). The individual and their unique characteristics are placed at the center of the model, and there are four levels of external factors that influence an individual's behaviors, including micro-, meso-, exo-, and macrosystem levels of influence (Bronfenbrenner, 1992; see Figure 5.1). The microsystem includes individuals' face-to-face interpersonal relations in specific settings, for example in physical education classrooms, in which students interact with teachers and peers. The mesosystem is in turn composed of multiple microsystems, or the interrelations between individuals and the various settings that contain them. In the context of this study, those systems are the family and the school, because parents/guardians, administrators, and classroom teachers have the potential to promote or hinder the implementation of a physical education program. The exosystem includes the link between individuals and a larger social system that may not contain the developing individuals, such as

organizations, institutions, and the community. Finally, the macrosystem refers to cultural beliefs and values that impact the micro-, meso-, and exosystems. For instance, public policy at the national, state, district, or school levels can influence the implementation of physical education.

Figure 5.1

Social Ecological Model for Development School Physical Education



This study focused on the interaction between the physical education program and other factors (i.e., students, parents, classroom teachers, and administrators). The multi-layered complexity associated with physical education is reflected through the socio-ecological model which allows the consideration of different stakeholders' understandings. Students, parents, classroom teachers, and administrators each impact the interactions and relationships within the nesting circles of the social ecological model. Listening to different stakeholders' voices allows for a more comprehensive understanding of physical education, which has the potential to provide insights for the improvement the implementation of high-quality programs. Further, there is a lack of comprehensive investigation into the perceptions of physical education from multiple groups of stakeholders within the same study, and this study attempted to fill this gap

using a multifaceted approach. Therefore, the purpose of this study was to explore the perceptions of students, parents, classroom teachers, and administrators on physical education in Colorado.

Methods

This study employed an interpretive qualitative research design to explore stakeholders' perceptions on physical education in Colorado (Merriam & Tisdell, 2016). Interpretive qualitative research is an approach to deriving constructs from the field by illustrating the phenomenon of interest from the gathered data, which allows researchers to view the world through the perceptions and experiences of participants (Elliott & Timulak, 2005; Merriam & Tisdell, 2016; Thanh & Thanh, 2015). This study aimed to explore stakeholders' perceptions of physical education through interviews and artifacts (i.e., physical education documents, policy documents, the PE for All Colorado physical education model policy [Colorado Health Foundation, 2016], and the Colorado state profile of physical education from the 2016 Shape of the Nation report [SHAPE America, 2016]). Stakeholders shared their perceptions of "typical" physical education which focused on what physical education was like prior to the global pandemic that started in March 2020.

Participants and Contexts

Participants ($N = 28$) in this study included students ($n = 8$), parents ($n = 8$), classroom teachers ($n = 9$), principals ($n = 2$) and one assistant principal (see Table 5.1 for additional demographics). The participants were recruited from three schools in Colorado, including one elementary school, one middle school, and one junior/senior high school in urban, suburban, and rural areas (see Table 5.2). School A is a charter school (K-12), and participants from this school were all from elementary level, thus, they shared their perceptions of elementary physical

education. School C is a junior and senior high school (7-12 grade), students and classroom teachers in this study were from senior high school level, and thereby their perceptions focus on senior high school physical education.

Table 5.1

Summary of Demographic Characteristics for Stakeholders

Group	School	Stakeholder	Gender	Comment
Students (<i>n</i> = 8)	School A	Student 1	Male	4th grade
		Student 2	Female	4th grade
		Student 3	Female	4th grade
	School B	Student 1	Female	7th grade
		Student 2	Female	8th grade
		Student 3	Female	7th grade
	School C	Student 1	Female	10th grade
		Student 2	Female	11th grade
	Parents (<i>n</i> = 8)	School A	Parent 1	Female
Parent 2			Male	A professor of social work
Parent 3			Female	A yoga instructor
School B		Parent 1	Female	Work for a local interfaith nonprofit
		Parent 2	Male	A social studies teacher
		Parent 3	Female	Do compliance for bill collections
School C		Parent 1	Female	A homemaker
		Parent 2	Female	A secretary at a doctor's office

Table 5.1 (continued)

Group	School	Stakeholder	Gender	Comment
Teachers (<i>n</i> = 9)	School A	Teacher 1	Female	5th grade
		Teacher 2	Female	1st grade
		Teacher 3	Female	2nd grade
	School B	Teacher 1	Male	6th-8th grade technology and design
		Teacher 2	Male	6th-8th grade English
		Teacher 3	Male	6th grade English & social studies
	School C	Teacher 1	Female	10th-12th grades language arts
		Teacher 2	Male	9th-12th grade science
		Teacher 3	Female	10th-12th grade math
Administrators (<i>n</i> = 3)	School A	Principal	Female	10 years in current school
	School B	Assistant Principal	Female	14 years in current school
	School C	Principal	Female	12 years in current school

Note. *N* = 28.

Table 5.2

Summary of Demographic Characteristics for Schools

School	Grade Level	Charter School	% Free and Reduced Lunch	Setting	Region
School A	Elementary	Yes	2%	Urban	Metro Area
School B	Middle	No	36%	Suburban	North Central
School C	High	No	71%	Rural	Southeast

Note. *N* = 3.

Physical education in School A is required for all grade levels, the instruction time is 45 minutes per class period, and they meet two times per week for a total of 90 minutes per week. The class size for physical education class is approximately 25 students who are all from the same classroom. Two classes take place at the same time with the gymnasium is separated in the middle with a divider and each class is taught by one of the school's two physical education teachers. The physical education teacher in this study, is a licensed teacher who also coaches soccer and enjoys running marathons.

Physical education in School B is required for one semester each school year, the instruction time is 80 minutes per class lesson, averaging 2.5 times per week (alternating two and three times per week every other week) for a total of 200 minutes per week. The class size is between 50 and 60 students as they combine two classes together and two physical education teachers co-teach the class. Teachers emphasize social emotional concepts in their classes. School B provides an adapted physical education program for students with disabilities in which physical education teachers pair students with disabilities with typically developing students. The two physical education teachers are both licensed and coach several sports.

The physical education department in School C includes physical education and health education, and they have a graduation requirement of two semesters of physical education and one semester of health. The instruction time is 56 minutes per lesson, and they attend physical education four times per week (the school has a four-day school week) for a total of 224 minutes of physical education per week. The class size varies between 10 and 20 students, while other classes in the school (e.g., math) average 15 students. School C allows substitution of other activities for physical education credits (e.g., outside physical activities or sports). The physical education teacher is a licensed teacher who coaches cross country and enjoys running.

Data Collection

Multiple data sources were used to explore stakeholders' perceptions of physical education in Colorado, including interviews (i.e., focus group interviews or individual interviews) and artifacts consisting of physical education documents (i.e., class schedule, curriculum documents, syllabi, budget plans, etc.), policy documents (e.g., district policy in physical education), the PE for All Colorado physical education model policy (Colorado Health Foundation, 2016), and the Colorado state profile of physical education (SHAPE America, 2016).

Interviews

Focus group interviews were conducted with students, parents, and classroom teachers, while individual interviews were conducted with administrators. Given the current context in the U.S. due to COVID-19, the interviews in this study were conducted virtually using Zoom (Zoom, 2011). With the nature of a virtual focus group (i.e., where only one person can talk at a time, it is harder to "add on" to discussion, etc.), the researcher limited the number of participants to between two and three for each group. Students, parents, and classroom teachers from the same school formed the groups for the interview so that they could talk about physical education at their specific school (or their child's school). The two students in School C were scheduled for a focus group interview, yet they joined the meeting at different times, and thereby the interviews with them were two individual interviews. Given the nature of school administrators, each principal/assistant principal shared their insights with respect to physical education at their own school in an individual interview.

The interview guide focused on stakeholders' general perceptions of physical education and their awareness of physical education programs at the schools. The interview questions for

all the participants were the same or similar, but used different wording based on stakeholder group (see Appendix K). The interviews were conducted virtually by the researcher using video conferencing software (i.e., Zoom). The interviews used a semi-structured and open-ended format, which allowed the researcher to probe into participant responses and follow up on new topics of interests (Creswell & Poth, 2018). Each interview lasted between 45-60 minutes and was audio recorded. Audio recordings were transcribed verbatim and participants, and the school to which they were connected, were provided with a pseudonym to protect their anonymity.

Artifacts

Physical education documents, policy documents, the PE for All Colorado physical education model policy (Colorado Health Foundation, 2016), and the Colorado state profile of physical education (SHAPE America, 2016) were collected as artifacts, which provided supplementary data for this study (Creswell & Poth, 2018). After all the interviews were conducted, the researcher asked the physical education teachers at each school to share physical education documents, such as syllabi, course schedules, curriculum documents, lesson plans, fitness test plans, assessments, and budget plans. The physical education documents were used to contextualize the interview data. During the interview, the administrators were asked to share policy documents related to physical education from their school or district and the researcher searched available online resources associated with physical education on the Colorado Department of Education (CDE) website (CDE, 2016). These resources helped provide context as to what physical education should ideally look like in schools. Further, the PE for All model policy provides recommendations to support schools in improving physical education for students (Colorado Health Foundation, 2016). Those recommendations are on topics such as instruction time, curriculum, class size, assessment, policy, funding and so on. This model policy

was directly downloaded from the Padres & Jóvenes Unidos website (<http://padresunidos.org/wp-content/uploads/2016/12/PE-For-All-CO-Report-FINAL-for-release.pdf>) and was used to consider an ideal version of physical education and to consider in conjunction with what is learned during the interviews. Additionally, the 2016 Shape of the Nation provides a state-wide snapshot of physical education for each state across the country (SHAPE America, 2016). The Colorado state profile provides additional supporting information about physical education programs across the state, and it was downloaded from the SHAPE America website (https://www.shapeamerica.org/advocacy/son/2016/upload/SON_-Colorado_-2016.pdf).

Data Analysis

To understand each group of stakeholders' insights on physical education, the researcher analyzed the data by groups (i.e., students, parents, classroom teachers, and administrators). Each stakeholder's responses to interview questions were analyzed inductively using open and axial coding (Corbin & Strauss, 2008). Open coding intends to identify broad concepts and patterns, while axial coding makes connections between those patterns (Corbin & Strauss, 2008). The transcripts were read multiple times, significant phrases or sentences that pertain directly to stakeholders' perceptions of physical education were identified, and preliminary codes were noted in the margins. Next, the researcher finalized a list of codes, and created brief descriptions using a codebook (Creswell & Poth, 2018). Within the codebook, the researcher developed the categories by identifying patterns among the codes to interpret stakeholders' perceptions of physical education, and the categories fit together and were discrete from each other (Corbin & Strauss, 2008). Finally, four categories were conceptualized and defined in terms of their properties and dimensions, including purpose of physical education, its impact, learning

environment, and suggestions to its improvement. The findings associated with specific categories for each group of stakeholders are presented in the results.

Additionally, the researcher used document analysis to examine and interpret the artifacts (Bowen, 2009). The researcher first reviewed the documents several times, identified meaningful information related to the stakeholders' insights of physical education (i.e., purpose, impact, learning environment, and suggestion), and coded the relevant contents (Bowen, 2009). The codes from the documents supported and verified the findings from interview data in this study (Bowen, 2009). For example, the curriculum documents served as evidence to confirm the findings related to what was happening in physical education according to the stakeholders during the interview, and the policy documents verified stakeholders' awareness of the requirements and policies related to physical education in their school (or their child's school).

Trustworthiness

Trustworthiness was established using a variety of techniques, including data triangulation, use of a researcher journal, peer debriefing, and thick description. The following sections describe the detailed process for each technique.

Data Triangulation

Data triangulation allows the researcher to crosscheck evidence and findings to ensure that a full and accurate understanding of participants' perceptions of physical education is obtained (Pitney, 2004). The researcher made use of multiple and different sources and data collection strategies to provide corroborating evidence (Bazeley, 2013; Glesne, 2016; Yin, 2014). For this study interviews were conducted, and physical education documents, policy documents, physical education model policies, and the state profile of physical education were

collected. Those data sources were all considered to confirm the emerging findings (Merriam & Tisdell, 2016).

Researcher Journal

A researcher journal was kept to document personal reflections, methodological decisions, questions raised, theoretical propositions, and the evolving perceptions of the study. Using a journal ensures that the researchers' beliefs, values, assumptions, and positions do not influence the research process. The researcher kept an ongoing record in the journal from the inception to the completion of the study.

Peer Debriefing

The peer debriefer verifies that the data is collected, analyzed, and interpreted in an appropriate way, keeping the researcher honest and asking questions about the methods, meanings, and interpretations (Creswell & Poth, 2018; Pitney, 2004). The researcher discussed the process of the study, the congruency of emerging findings with the raw data, and tentative interpretations with a colleague (Creswell & Poth, 2018; Merriam & Tisdell, 2016). As a result of peer debriefing, several subheadings and quotes under students' and parents' perceptions were changes.

Thick Description

The researcher provided description to contextualize this study and allow readers to make decisions regarding transferability (Creswell & Poth, 2018; Merriam & Tisdell, 2016). This study described in detail all its components, such as the participants and the contexts under consideration (Creswell & Poth, 2018). With these detailed descriptions, readers were able to transfer information to other settings and to determine whether the findings can be applied elsewhere (Creswell & Poth, 2018).

Results

The results of this study are presented based on the perceptions of four groups of stakeholders-students, parents, classroom teachers, and administrators-on physical education at their/their children's school in Colorado. These perceptions consist of four parts: the purpose of physical education, the impact of physical education on children, the physical education learning environment, and suggestions to improve physical education.

Students' Perceptions

Overall, the students in this study had a good understanding of the general structure of the physical education programs at their schools, which can be confirmed by the documents shared by physical education teachers (e.g., class schedule, curriculum documents, syllabi, etc.). All students indicated that they had positive learning experiences in physical education, and that participating in physical education had a beneficial impact on them. While most of the students wanted to have more physical education, some secondary school students suggested that participation in sports could partially substitute for physical education credits. When asked in the interviews to identify their favorite class at school, only one student said physical education, yet they all reported that they were active and played sports outside of school.

Purpose: Improve Health and Wellbeing

Overall, students indicated that the purpose of physical education was to help improve health and wellbeing, yet their understandings of the focus of its purpose varied by grade level. Elementary school students generally believed that physical education allowed them to gain knowledge and skills to stay active, for example, "to help people know how to exercise and help them move their bodies and stay active" (School A-Student 1). Middle school students believed that physical education helped: "to make your mind and body stronger" (School B-Student 2)

and that it “makes you healthier both mentally and physically” (School B-Student 1). High school students emphasized that physical education should: “help get us in shape” and to ensure that “when you’re older, it’s not hard for you to do things” (School C-Student 1). Therefore, while each grade level of students varied somewhat in their beliefs about the purpose of physical education--they all generally linked the purpose to improving student health and wellbeing.

***Impact: Get Energy, Feel Happy,
and Increase Social Interaction***

Students in this study reported that the influence of physical education resulted in increased energy, feeling better, and meeting new people. All students shared that participating in physical education made them feel energized and ready for the day. For instance, “When I get back to class, I’m more hyped” (School A-Student 2). Those students shared that they felt happy after participating in a variety of physical activities in physical education classes, for example, one student said, “It [physical education] makes me feel good. I mean it takes your mind off of everything.” (School C-Student 1). Further, more specifically, middle school students reported that they met new people, which increased social interaction with their peers in physical education class. Student 2 at School B explained:

I have met a lot of new people who I wouldn't normally hang out with, and that just brings everyone together, and I just started hanging out with new people, because they were in our PE [physical education] class. They're really cool. It's really a fun time to get to know each other in PE because sometimes people normally wouldn't hang out outside of school or even in school.

While students discussed various other impacts of physical education, the majority of the participants reflected on feeling better during and/or after physical education and having time to interact positively with their peers.

Learning Environment: Fun and Learning

All students valued fun and enjoyment in physical education, for example: “Play fun activities, like do fun races and stuff” (Student A-Student 1), “it [cardio drumming] was super fun” (Student B-Student 2), and “he [physical education teacher] makes it fun” (Student C-Student 2). Most of the students appreciated a positive learning environment to allow them to obtain the knowledge and skills necessary to help them understand how their bodies work to stay healthy. As one student shared, “They [physical education teachers] want us to learn in physical education. They are like, ‘I really want you to like feel better mentally and physically, and I am going to help you learn that stuff’” (School B-Student 1). The instruction techniques that students reported that their teachers employed included offering equitable learning opportunities, engaging in new and meaningful content, providing feedback and support, presenting challenges and autonomy, allowing teamwork with peers, and ensuring great amounts of activity time. For example, one student shared that the physical education teacher observed their performance and gave feedback to improve their skills, saying, “If we’re doing something wrong, she just tells us why we are doing it wrong and how to improve it” (School A-Student 3). Some students reported that teachers’ short instruction allowed them to have more time for physical activities:

When [physical education teacher] is talking to us at the board, she usually does not take that long to explain it, like she saves most of the time for us to go and do it instead of talking about it. (School A-Student 2)

With providing a fun learning environment, students believed that highly qualified physical education teachers were knowledgeable, kind, supportive, and athletic. For example, student 2 at School A explained, that their physical education teacher, “...is really good at what he does. He knows what he is talking about, and he does everything correctly.” Further, all of the

students indicated that qualified physical education teachers cared about students and supported their learning. “If we have like, any problems, they [physical education teachers] will come to us and ask if we need help. They are just so nice and supportive” (School B-Student 1). Lastly, most of the students valued the athletic background of teachers, for example: “He [physical education teacher] has done like 5K runs. He rides his bike all his time.” (School C-Student 1). Overall, students valued these characteristics of physical education teachers who create an enjoyable learning environment.

Suggestions: Requirements, Classroom Management, and Funding

The students provided some suggestions to improve physical education at their schools, including the requirement for physical education, better classroom management in elementary physical education, and funding for weight room machines in high schools. While the elementary school students were satisfied with attending physical education two times per week, the secondary school students indicated that the school or district should require students to take physical education: “I think that we should take PE [physical education], I think it's really a good opportunity to meet new people and try new things” (School B-Student 2), and “I think it's better to have it [physical education], because if you're just putting it as an elective, people can just be like, ‘No, I don't want to do it’” (School C-Student 1). Usually, physical education teachers in elementary school had the whole class sit down in response to a few students' off-task behaviors. Elementary students therefore suggested that “instead of the entire class doing that, just talking to the one individual person” would be better (School A-Student 1). Further, high school students indicated funding was needed to update the equipment in their weight room, and this can be confirmed by the physical education document (i.e., the budget plan). Thus, students' suggestions for the improvement of physical education vary according to their contexts.

Overall, the students demonstrated a good understanding of physical education at their schools, and they believed physical education played a critical role in their physical, mental, and social-emotional wellbeing. For most of the topics, the majority of students had the same or similar perspectives, while on a few topics they had different perspectives (e.g., on substitutions for physical education credits).

Parents' Perceptions

The parents' understanding of physical education in their children's school were mainly based on occasional conversations with their children and the report cards they received from physical education teachers. Most of the parents believed that their child's school provided quality physical education that positively influenced their children. The parents believed that their children were physically active in class and that physical education might be their child's favorite class. Further, some parents' previous experience at secondary school seemed to have caused their negative attitudes toward physical education, which impacted their consideration of whether children needed secondary physical education. As a result, these parents recommended allowing students to substitute sports for all, or part, of the physical education class time/credits, while other parents supported having rules against substitutions with seeing the impact of physical education on their child's health.

Purpose: Gain Competence and Confidence to Stay Healthy

The parents in this study believed that the purpose of physical education was to gain competence and confidence to be physically active for a lifetime, as well as to allow children to learn about health and wellness in order to keep healthy. They believed that their children learned about a variety of physical activities and sports in the physical education classroom, which met to the purpose of physical education. Some parents explained that it was important to

expose children to multiple activities instead of focusing on certain sports in class, and consequently all children would have opportunities for participation, especially for students who were not naturally athletic. “The kids are afraid to participate because they are not as athletic as others. I just worry about some of those kids who are really not getting a chance to participate, because others dominate because of their athletic ability” (School A-Parent 2). Beyond the physical activities, some of them believed that children should be introduced to health and wellness knowledge in class to help them “maintain physical and mental health” (School C-Parent 2). One parent shared a comprehensive description of what they believed should happen in physical education:

I think the first thing was confidence...As you grow older you have got that base of how to do the things. I feel like there's confidence that comes with being involved in physical education and learning the skills. It is important to have it in your life, and then just being healthy, knowing health should be a priority, and knowing what to do to be healthy...I think knowledge of team sports. The part of physical education is to teach how to play basketball, how to play baseball, how to play volleyball, and just to give the base knowledge, I think that's important too. (School A-Parent 1)

All parents in this study believed physical education provided opportunities for their child to gain skills, knowledge, and confidence for the participation in physical activities, and to help their child lead a healthy lifestyle.

Impact: Increase Energy, Reduce Stress, and Improve Health

Parents in this study believed that physical education had the potential to increase children’s energy, reduce stress from academics, and improve physical and mental health. As one parent explained, children are “more energized for schoolwork when they had physical education

during the day” (School B-Parent 3). Parents indicated that at school children were in their classroom seats for the majority of the school day, and that physical education class “helps their brains take a break and focus on something else” (School A-Parent 3). Further, they believed that nowadays children experienced academic stress from their parents’ high expectations, and that participating in physical education can help them reduce academic pressure. As one parent said, “I think, especially now with academics and how stressful it is for kids, I think we expect a lot academically from kids. I think using different things physically can really help you with those kinds of stressful situations” (School A-Parent 3). Additionally, all parents acknowledged the impact of physical education on children’s physical and mental health, with one parent explaining, “It is like a full body physical education, where you learn mental and physical aspects in addition to exercise aspects” (School C-Parent 2). With the pressure children face, parents valued the positive influence of physical education on their children’s overall health and wellness.

Learning Environment: Inclusive and Structured

The parents believed a quality physical education classroom was structured and inclusive, in which students can learn different types of skills, physical activities, and sports. To do that, parents indicated that physical education teachers should have an organized class, set individualized goals for students with different abilities, and include all students. More specifically, students would have opportunities to engage in all kinds of activities in the class, such as sports, dance, yoga, mindful walking, and so on, a variety that met different students’ interests and capabilities. As a result, students would be able to do physical activities not only outside of school but also in their daily life when they grow older. “When they [students] leave school, they can play disc golf, go mountain biking, and do yoga” (School B-Parent 2).

Parents believed that in order to build a structured classroom, physical education teachers should have high expectations, know their students well, and have a passion for students and teaching. Some of them believed high quality teachers knew students' abilities, helped them to set achievable goals, and encouraged students to do their best to approach these high expectations. Further, most parents said a qualified teacher had a commitment to students and teaching, and some of the parents had seen the passion of the physical education teachers at their child's school. For example, "Definitely that passion, she [physical education teacher] clearly loves physical education, loves teaching kids, and I think she is a really good teacher" (School A-Parent 3). Overall, parents perceived physical education as a place that all students can engage in various physical activities and sports with organized learning environment.

Suggestions: Emphasize Health and Incorporate Technology

To improve physical education, the parents provided two suggestions: bigger emphasis on health and incorporate technology into the classroom. Most of the parents emphasized the role of physical education in children's physical and mental health and wished teachers would integrate more health concepts into the class, such as "mindfulness" (School A-Parent 2). Additionally, some parents recommended using technology in the classroom for student learning. "Incorporating new technology, maybe the Fitbit or other trackers, would be good" (School C-Parent 2), especially in secondary physical education class. Parents' suggestions seem to align with their understanding of the impact of physical education.

In conclusion, the parents who participated in this study had some understanding of physical education in their children's schools according to conversations they had with their children and the report cards they received. They believed physical education had a benefit on

children's active lifestyles, health, and stress relief, which led to their insights about the implementation of quality physical education.

Classroom Teachers' Perceptions

Classroom teachers in this study knew the physical education teachers well, whether it was because they sometimes observed physical education classes when they brought students into/back from physical education, their classroom was next to the gymnasium, they were advised to observe physical education classes by the principal, or just from being colleagues in the same school. The majority of the classroom teachers believed schools had adequate funding for physical education, as their schools had big gyms and enough equipment, and they also noted that physical education teachers usually applied for grants and conducted fundraisers to support the program. In addition, most of them indicated the presence of a supportive administration, clear school expectations for the subject, and community resources that facilitated the implementation of physical education at their child's schools.

Purpose: Live a Healthy Lifestyle and Practice Social Skills

Classroom teachers perceived the purpose of physical education was to develop students a healthy lifestyle and to allow students to practice social skills. They believed that students learning about how to take care of their bodies in physical education contributed to their lifetime exercise and healthy eating. For example:

It [physical education] helps kids live a healthier lifestyle...teach them how to live a healthier diet and how to have lifelong exercise skills so they can keep themselves healthy...I said that it was to keep everybody healthy and teach them healthy habits as they grow up. (School C-Teacher 2)

Further, most classroom teachers appreciated that the physical education teachers at their schools provided opportunities for students to collaborate with peers through group activities and encouraged teamwork by being part of a team. Thus, physical education allowed students to experience healthy social interactions and developed students' social skills. As Teacher 1 from School A explained:

I think there is a social aspect to it as well with teamwork, how they have to work through any problems or things that might arise in a team sport. So, I think that it's not just about moving their bodies, learning how to play volleyball, I think a lot of it is actually the social aspect as well.

While classroom teachers did value other objectives of physical education, healthy lifestyle and social skills were the priority for their understandings with respect to its purpose.

Impact: Promote Health and Social Skills

All classroom teachers indicated that they had seen the impact of physical education on the students in their schools. "I know they are doing education parts, learning how to live a healthier lifestyle, knowing what a healthy diet is, and getting healthy amounts of exercise" (School A-Teacher 2). Most of the teachers said that the physical education teachers emphasized physical and mental health in the classroom: "Usually it has always been physical health, but I feel like things at our school are also focused on mental health" (School B-Teacher 2). Additionally, students had the opportunity to develop their social skills in physical education, including communication and collaboration. "It [physical education] help build a better team atmosphere and students got to know to work better with their teammates." (School C-Teacher 2). The classroom teachers indicated that students learned about the teamwork skills in the class and transferred those skills to their lives: "It is the long-term benefit of collaborating with others"

(School B-Teacher 2). The teachers believed that physical education had an impact on students' health and social skills, which highly aligned with their definition of the purpose of physical education.

Learning Environment: Help Each Student Be a Better Person in a Safe Environment

The classroom teachers perceived effective physical education classrooms were those that built a safe and welcoming learning environment, held students accountable, developed students' social emotional skills, connected with other departments, and made a difference in the school as a whole. They believed a safe and welcoming learning classroom made students feel connected, allowed students to grow, and increased and maintained students' commitment to learning. For example, one teacher expressed that their school's physical education teachers did a phenomenal job, "Once the kids come in, from the first minute they know exactly what they are doing. They are tracking their own progress. They can look at their heart rate monitors" (School B-Teacher 2). Further, most of the classroom teachers valued social and emotional skills and stated that physical education should provide opportunities for students to learn life skills, such as handshakes, eye contact, apologizing to others, communication, and managing failure appropriately. According to physical education documents (i.e., curriculum PowerPoint slides), physical education teachers incorporated social emotional learning into class. As one classroom teacher shared:

Like [Teacher 2] said, kids understand failure, they understand mistakes, and they understand that they are going to grow through those mistakes and failures, because they can work backwards, and they can critically think to problem solve. And that all starts in there [physical education classes]. (School B-Teacher 1)

Most of the classroom teachers explained that a good physical education department would connect with other departments within the school. Physical education teachers communicated with other academic teachers to promote student learning and development. For instance, physical education teachers updated classroom teachers on students' performance and behavior and cooperated with them on certain topics. Teacher 1 from School A explained:

She (physical education teacher) says, 'tell me when you are going to do the baseball story, and I will do my baseball unit.' So that way the students can have more background knowledge for understanding the story that we read in class because it has a lot of the baseball terminology. If they are not familiar with the game, they will miss out a lot on that. So, they can apply what we do in the classroom to the physical education classroom.

The classroom teachers at School B believed that effective physical education led to changes in school culture. Physical education not only impacted students in the classroom but also their behaviors in general, making the school better. "I just think that our school is absolutely better because of those two [physical education teachers]. They love the students, they love what they do, kids remember them, and they connect with all" (School B-Teacher 3). Seeing the benefits of emphasizing social emotional learning in the physical education, classroom teachers attempted to incorporate it into their own lessons, along with coaching.

Some classroom teachers defined a qualified physical education teacher as one who had a coach perspective, demonstrated empathy, and valued each individual student. A coaching perspective allowed physical education teachers to "translate the coaching skills into his classroom" (School C-Teacher 3). Those teachers believed physical education teachers who had empathy were able to understand students' feelings and modify lessons to motivate students, who

“see things through a different lens, and value every single human soul that comes into that building” (School B-Teacher 1).

The majority of the classroom teachers perceived physical education as part of education, and therefore they believed that the social interaction with peers and the emphasis on life skills in physical education classroom contributed to students’ overall development.

***Suggestions: More Physical Education,
Prohibiting Substitutions, and
More Funding***

Based on their current physical education programs, the classroom teachers provided some suggestions for its improvement, including requiring more physical education, prohibiting substitutions, and providing more funding for resource and staffing. First, seeing the impact of physical education on their students, all the classroom teachers suggested that their schools require more physical education time for students--two times per week for elementary students and two years of physical education instead of one in high school. Secondary classroom teachers suggested that their schools ought not allow substitutions for physical education credits, as sports are different from physical education. Students who do sports “just play that sport,” while they are “being exposed to other things, learning good habits or eating habits” in physical education (School C-Teacher 3). Most of the participating teachers also recommended more funding for resources and staffing so that students had more learning opportunities and choices, with the goal that, “having enough teachers and resources for kids to be able to get different experiences that they get to choose” (School C-Teacher 2). The need for funding to purchase resources can be verified by School A physical education teacher’s budget plan that she requested curriculum textbooks (e.g., FitnessGram and ActivityGram Assessment book), supplies (e.g., physical activity bingo card, hoop holders), and technology (e.g., speaker).

In summary, the classroom teachers had a good knowledge of physical education in their schools, and they knew the physical education teachers well. They believed physical education played an important role in enhancing students' health and social emotional learning, and they provided relevant suggestions for its improvement.

Administrators' Perceptions

All the administrators in this study had been at their current school for ten years or more, so they knew their physical education programs and associated departments well. The administrators were satisfied with their physical education programs, as they had seen benefits for students and the school. During the interviews, these three administrators shared policies related to physical education in their school districts. For example, the district for School C has a physical education and health requirement for graduation and allows for the substitution of sports for physical education credits. According to the district website, "0.5 Health, 1.0 of PE: One fourth PE credit may be earned for finishing a sport in good standing, maximum possible credit $\frac{1}{4}$ per season. Maximum of 1 credit of PE posted to transcript." The district in which School A was located requires physical activity for elementary students, but does not have a specific requirement for physical education:

Goal Number 3. The district will provide opportunities for students to engage in physical activity.

- 1.3.1 Physical activity may include, but is not limited to, physical education, recess, classroom fitness breaks, field trips that include physical activity, exercise programs, or classroom activities that include physical activity. (School A District Website)

Purpose: Learn Lifetime Physical Activities and Social Skills

Overall, the administrators indicated that physical education aims to give students opportunities to participate in movement, learn about lifetime physical activities, and develop social skills. The elementary school principal focused on different ways to be active and keep healthy, the middle school assistant principal emphasized social skills, and the high school principal highlighted getting the students' bodies in motion as a way to manage energy. For instance, the elementary principal (School A) said, "The goal of physical education is to teach students lifelong habits of being healthy and staying active and fit." The administrators' definition of the purpose of physical education is seemingly influenced by what is happening in their school's current physical education program.

Impact: Improves Academic Learning, Behavior, and Social Emotional Wellbeing

The administrators indicated that physical education had an impact on students' academic learning, positive behaviors, and social emotional wellbeing. All of them believed physical education allowed students to get up and move around, and as a result, their brains worked more effectively, which led to an increase in their concentration during academic learning and attitudes towards academics. For example, the principal at School A said, "If they [students] get their blood moving, then they will be able to do a better job with whatever it is they are learning". While another stated, "It [physical education participation] shows in their classroom grades and classroom attitude" (School B-Assistant Principal).

Beyond academic learning, the secondary school administrators believed physical education also played a critical role in students' positive behaviors. They observed that students

who did not take physical education had more problems during school, as the principal at School C said:

Especially with the junior high boys, if they do not get PE [physical education] during the day, there are more behavior problems. I'm serious...I don't have the data that shows these eighth-grade boys that got in trouble didn't have physical education. I just have that organic observation.

Social emotional wellbeing was another benefit of taking physical education, where students learned social skills and had a positive attitude in school. The administrators believed that students would learn and practice when playing team sports, “how to take turns, how to follow rules, and how to show good sportsmanship” (School A-Principal). For example, the assistant principal at School B indicated they would have students who struggle the most at school take more physical education credits because, “Physical education is not sport; it is about learning to move your body. Moving your body is going to help your social emotional wellbeing and your mind.” The presence of social emotional learning in physical education can be confirmed by the documents that the School B physical education teacher shared. The administrators’ understanding of the impact of physical education was largely based on the needs of students at their school.

***Learning Environment: Align with
Standards to Achieve Student
Learning Objectives***

Administrators believed that physical education teachers aligned with standards to achieve students learning objectives that physical education teachers would design the lesson according to standards and created a positive and inclusive classroom to ensure equitable learning opportunities for all students. First, a powerful relationship between the physical

education teacher and the students was described as the foundation for student learning. As the assistant principal at School B said, “The relationship with students makes everything else fall right into place.” Further, physical education teachers employed a variety of appropriate instruction techniques to maximize physical activity time in order to achieve learning objectives. Students had the opportunity to interact with their peers during the game and to take ownership in the class. For example:

Students wear heart rate monitors when they are assessing themselves. So, everyone feels they can get there at their own speed, and it is not the PE teacher who is going to yell at you. The PE teachers just want you to move and get yourself in that heart rate. They [students] can monitor it by themselves and see where they are. Each kid feels success.

(School B-Assistant Principal)

Additionally, administrators believed that in order to achieve the learning objectives, physical education teachers should be multifaceted professionals who collaborated with classroom teachers to create an interdisciplinary unit, reinforced the school system in the class, and demonstrated leadership of physical activity at school. As a result of such qualified teachers, more students participated in sports, changing the physical activity culture in the school positively. The assistant principal from School B explained:

We have the Nordic festival, and the physical education teachers put on this ultimate running activity. Every year it takes over three hours to get all the kids through it as a team to compete, so many kids come out, they are pumped and excited. They just want to move and have fun, so we create a lot of fun through movement. That is pretty powerful, it does fall over into our school culture.

Furthermore, administrators at secondary schools believed physical education teachers should have coaching experience. They viewed physical education teachers' coaching experience as part of the qualification package. Overall, all the administrators indicated that the physical education teachers at their school did meet these characteristics of highly qualified teachers who provided positive environment to support students' learning.

***Suggestions: Appropriate Instruction,
More Physical Education, and
Clear Guidelines***

In order to improve physical education, the administrators recommended appropriate instruction, requiring more physical education for students, and having clear guidelines for elementary physical education. The administrators expressed that they were satisfied with the current state of physical education at their schools in general and suggested that providing appropriate instruction was a priority for quality physical education. Given the impact of physical education on students' academic learning, positive behaviors, and social skills, the secondary school administrators believed that more physical education was necessary for students. Further, the elementary school in this study had no clear guidelines for physical education, while both of the secondary schools did have clear requirements (i.e., one credit for graduation [School C], one semester each school year [School B]). Consequently, elementary principals allowed allotted physical activity time to decide instruction time for physical education at their schools. Therefore, the elementary school principal in recommended having clear guidelines for physical education:

I think having expectations that are consistent across the state for at least a minimum number amount of physical education will be great. Maybe expectations are on how much of that is instructional physical education and how much of that is non-instructional physical activity like recess and those pieces.

All in all, the administrators in this study had a good understanding of physical education in their schools. They valued the positive impact of physical education on their students through their participation in a variety of physical activities and sports in an effective physical education classroom.

Discussion

The purpose of this study is to explore the perceptions of students, parents, classroom teachers, and administrators on physical education in Colorado. The levels of knowledge each of the stakeholders in this study have regarding physical education are varied. Students and administrators are most familiar with school physical education, followed by classroom teachers, and then parents. Adhering to the social ecological model, physical education is associated with students, parents, classroom teachers, and administrators that the interactions between physical education and stakeholders are mutual, in that physical education has an impact on stakeholders and, in turn, it is also influenced by them (Bronfenbrenner, 1992). Physical education has the potential to contribute to children's physically active lifestyle, health, social emotional wellbeing, academic learning, and positive behaviors (Ericsson, 2008; SHAPE America, 2014). Beyond the physical education classroom, changes among the students extend to the academic classroom and school at large by transferring the skills they learn there into their daily lives (Sandford et al., 2006). Simultaneously, physical education is influenced by these stakeholders' beliefs and attitudes toward physical education. For example, a supportive administration

contributes to the implementation of physical education (Banville et al., 2020). Physical education is positively viewed by its stakeholders with regard to its role in student development and school-wide influence (Colquitt et al., 2012; Georgakis, 2018; Kadir & Özkurt, 2016). The stakeholders in this study shared their insights regarding the purpose of physical education, its impact on children, their ideas of learning environment, and suggestions for improvement. Schools and physical education teachers should consider their voices when designing and developing physical education.

Stakeholder: Students

The microsystem of the social ecological model demonstrates students' interpersonal relations in physical education (Bronfenbrenner, 1992). In this study, students indicated that physical education contributed their health and wellbeing through physical activities and sports in the class. Further, their understanding of the purpose of physical education is different across grade levels that elementary students focused more on physical health, middle school students on overall health, and high school students on being in shape and physical health. Their perspectives are impacted by the focus of their physical education classes. One out of the eight students indicated physical education was their favorite class, although they were physically active outside of school. Similar to findings from other studies, the students rated their preference for physical education after reading, writing, science, math, English, and history (Bibik et al., 2007).

Students in this study emphasized that they enjoyed fun learning environments, and thus fun and enjoyment are the two prominent features of students' perception of a positive classroom, which aligns with previous findings of students' perceptions (Coulter et al., 2020; Phillips et al., 2019). Similar to the results from previous studies, students in this study indicated they enjoyed participating in a variety of activities wherein they could have social interactions

with peers through teamwork, leading to feelings of social inclusion (Walseth et al., 2018; Woodson-Smith et al., 2015). Students viewed autonomy, feedback, and challenge as characteristics of an effective classroom, as previous research indicates providing students with choices supports the satisfaction of their need for autonomy, which leads to the enhancement of cognitive skills and motor performance (Agbuga et al., 2016; Legrain et al., 2015). Further, the students in this study viewed their teachers as good teachers who demonstrate knowledge, support, kindness, and physical skills, and this is confirmed by the findings from other studies (Ramos & Mccullick, 2015; Ryan et al., 2003).

Stakeholder: Parents

The parents in this study only had occasional conversations with their children about physical education, which is consistent with the findings of a recent study which identified a lack of regular conversation about physical education class between parents and their children (Brewer & Burgeson, 2019). As a result, parents shared some inaccurate information and were unsure about certain topics, such as standards-based curricula, assessment, funding, and policy, which has been confirmed by Sheehy (2006). Thus, the communication between two different layers (i.e., students and parents) of the social ecological model may influence their understanding of and attitudes toward physical education. Additionally, the perceptions of physical education of the parents in this study were influenced by their prior physical education experiences that have emerged in prior studies (George & Curtner-Smith, 2018; Sheehy, 2006). Some parents in this study, who shared that they had negative experiences in secondary physical education, believed that physical education should be substituted if their children play sports. Further, the parents who participating in this study indicated that taking physical education allowed children to get out of their seats and moving; thus, they viewed physical education as a

break for children's brains during the school day and not necessarily an academic subject. Given that parents' mindset regarding physical education can be improved by advocating for physical education as a part of children's education, schools and teachers should become more active advocates for the subject (Dyson, 2014). When considering the social ecological model, parents' positive attitudes and beliefs toward physical education may lead to their support for the implementation of physical education (e.g., through Parent-Teacher Association; Coulter et al., 2020).

Stakeholder: Classroom Teachers

Classroom teachers believed effective physical education contributes to students' physical, mental, and social wellbeing through an introduction to a variety of ways to live a healthy lifestyle, which leads to school-wide changes (Barney & Deutsch, 2009; Morgan & Hansen, 2008b). Further, the classroom teachers appreciated the cooperation with physical education teachers and that physical education teachers would incorporate other academic content into class. Therefore, physical education teachers can cooperate with classroom teachers to integrate literacy and math into their classroom through interdisciplinary instruction, which is indicated in the study of Kaittani et al. (2017). These data illustrate how the collaboration between the layers of the social ecological model (i.e., physical education teachers and classroom teachers) can contribute to the center of the model-student development (Bronfenbrenner, 1992).

Stakeholder: Administrators

Consistent with the results of previous studies, administrators who participated in this study has positive perceptions of physical education, and they were satisfied with physical education program outcomes in their schools (Lounsbery et al., 2011; Zeng & Wang, 2015). Administrators in this study were able to share accurate information about their physical

education programs, which contradicts with other findings that principals demonstrate a general lack of familiarity with physical education programs at their schools (Banville et al., 2020; Lounsbery et al., 2011). When considering the benefits of physical education, the principals paid more attention to its impact on students' academic learning, positive behavior, and social emotional wellbeing. Further, administrators in this study appreciated that physical education influenced more students to participate in physical activity and enhanced students' positive behavior at school. This is supported by previous work that suggests that quality physical education contributes to the development of students as a whole person, which can lead to positive school-wide impact (Napper-Owen et al., 2008). The literature indicates that inadequate funding and limited physical education instruction time can pose significant barriers when implementing physical education (Lynch & Soukup, 2017; Rainer et al., 2012), and such barriers are evident in this study. This demonstrates that the mesosystem (i.e., school funding for physical education) and the macrosystem (i.e., policy for instruction time) of the social ecological model can hinder the implementation of physical education in schools; usually, the macrosystem influences the mesosystem, and in turn, leads to changes in the implementation of physical education (Coulter et al., 2020).

Common Understandings across Stakeholder Group

In addition to their unique perceptions, these stakeholders have some common understandings regarding the four topics (i.e., purpose, impact, learning environment, and suggestions). In respect to the purpose of physical education, stakeholders believed physical education is meant to provide opportunities for students to learn skills in and knowledge of various activities and sports to contribute to their health and physically active lifestyles. This conclusion aligns with the national physical education standards' definition of physical

education, which states that physical education aims to develop individuals' competence and confidence for a lifetime of healthful physical activity (SHAPE America, 2014). These findings confirm the results of previous studies that stakeholders value the role of physical education in developing children's lifelong physical activity habits for health (Cox et al., 2008; Houston & Kulinna, 2014; McKenzie & Lounsbery, 2014; Metzler et al., 2013).

Aligning with their understanding of the purpose of physical education, all stakeholders indicated that physical education influences students' social emotional wellbeing because students' social connections with their peers can make them feel better and happy (Lodewyk et al., 2009; Ruiz et al., 2010). Additionally, the parents and classroom teachers in this study also emphasized the role of physical education in children's physical and mental health, while administrators noted the increase in students' academic learning and positive behaviors. These findings are consistent with existing research, wherein a quality physical education program improves students' physical health, psychological development, social and emotional skills, mental alertness, and academic learning (Bailey et al., 2009; Le Masurier & Corbin, 2006; Sandford et al., 2006).

A quality physical education contains four components: policy and environment, curriculum, appropriate instruction, and student assessment (SHAPE America, 2015b). The stakeholders used their experience of physical education and the programs in the relevant schools to define a positive learning environment as a place that builds a fun, safe, and inclusive classroom that is purposeful and structured, provides a variety of meaningful content, maximizes physical activity time, and conducts appropriate instruction. This is similar to what Graham et al. (2013) described about the characteristics of a physical education program. The stakeholders did not emphasize assessment as part of an effective classroom, although they did mention

assessment should focus on growth instead of using the same standards to measure student performance and learning, as students have different skill levels. Additionally, all the stakeholders indicated that highly qualified physical education teachers are athletic, have high expectations, set achievable goals for students, support them to achieve their goals, and have a passion for teaching, which aligns with prior study (Napper-Owen et al., 2008). To create a quality classroom, they organize their program well, ensure each individual student has equitable learning opportunities, incorporate mental and social emotional learning, cooperate with classroom teachers to conduct interdisciplinary instruction, and reinforce school systems in class. Overall, teachers use a holistic approach to physical education to develop students as a whole person (Dyson, 2014; Lynch, 2019).

Different groups of stakeholders have distinct suggestions about the implementation and improvement of physical education. Classroom teachers and administrators advocate for more physical education for students, while some students and parents were satisfied with current amount of instructional time. Some parents emphasized physical education should be required, while others recommended substituting sports for physical education credits, specifically those parents who believe physical education is a sport and therefore children can skip physical education if they are involved in other sports (Dyson, 2014). In conclusion, stakeholders' understanding of physical education is associated with their experience in and attitude toward physical education.

Limitations

There are two limitations for this study. First, research has indicated that female students have less positive attitudes toward physical education compared to male students (e.g., Kadir & Özkurt, 2016; Säfvenbom et al., 2015). Among the students in this study, seven out of eight are

females, and one is male. Therefore, students' perceptions might be different due to the balancing of female students and male students in this study. Another limitation is that stakeholders' perceptions of "typical" physical education before the pandemic may have been influenced by their memories not being strong. The interviews took place between December 2020 and January 2021, and stakeholders were asked to share their insights according to the physical education prior to the global pandemic (March 2020). As a result, stakeholders need to take the memory to one year ago, which may lead to missing some information regarding physical education at their schools (or their child's schools).

Conclusions and Implications

Guided by the social ecological model, the purpose of this study is to comprehensively explore the perceptions of students, parents, classroom teachers, and administrators on physical education in Colorado. Understanding different groups of stakeholders' insights has the potential to improve the implementation of physical education when schools and physical education teachers are designing their physical education programs. The students and administrators in this study had a good awareness of physical education in their schools, followed by classroom teachers, and the parents, who had some understanding. Overall, stakeholders believed that the schools provide effective physical education for students. All the stakeholders valued the role of physical education in students' physical health and ability to be physically active for their lifetimes. Further, each group of stakeholders had their own views on the impact of physical education on children. They provided their own suggestions for the implementation and improvement of physical education in the relevant schools. Below are some general implications of this study for the implementation of physical education in Colorado:

- The state or school district should establish clear guidelines for instruction time for physical education in elementary schools.
- The school/district should prohibit the substitution of other activities for physical education class time or credit requirements in secondary school.
- Physical education should incorporate social emotional learning to promote student wellbeing and positive behavior.
- The physical education teacher should collaborate with classroom teachers to create interdisciplinary units of instruction.
- Physical education should reinforce school behavior systems in the classroom.
- Physical education teachers should be empathetic and develop strong relationship with students to motivate students' participation in physical education.
- Quality physical education can impact student behaviors and school culture leading to school-wide changes.

CHAPTER VI

GENERAL SUMMARY AND CONCLUSIONS

Quality physical education programs give students the knowledge, physical skills, and confidence to engage in physical activity and sport, which plays a vital role in contributing to students' physically active lifestyles (Houston & Kulinna, 2014; Peterson, 2013). In order to inform physical education in Colorado, the PE for All Colorado model policy creates clear recommendations for school districts and physical education teachers regarding what quality physical education should look like in schools (Colorado Health Foundation, 2016).

Understanding the state of physical education has the potential reveal any potential gaps between the model policy's recommendations and current physical education, and in turn, provides a baseline for its implementation and improvement. Further, considering different groups of stakeholders' perceptions contributes to understanding what is actually happening in physical education at schools and what insights stakeholders' have with respect to quality physical education, acting as a reference point when implementing and improving physical education program. Therefore, the purpose of this dissertation was to explore the status of physical education and stakeholders' perceptions of physical education in Colorado.

The purpose of study one was to explore the status of physical education in Colorado. Research questions included: (a) what is the status of physical education in Colorado based on the PE for All model policy's recommendations? and (b) what were the facilitators and barriers to implementing physical education in schools? Using the PE for All Colorado model policy as a guiding framework (Colorado Health Foundation, 2016), this study provides a snapshot of the

current status of physical education, addressing how the state has responded (or not) to the model policy. Most physical education programs met the recommendations for most components, while some programs only partially met the following components: district funding, waivers for physical education. Further, six facilitators and seven barriers emerged regarding the implementation of physical education at schools. Finally, eight general implications were provided based on the results of this study for the implementation and improvement of physical education in Colorado. Colorado is a local-control state, so physical education programs in Colorado schools vary widely. The findings of this study have the potential to act as a reference or guidepost for efforts to improve physical education in Colorado, creating a baseline from which to work. The state, schools, and physical education teachers should consider the PE for All model policy when implementing physical education and should advocate for a quality program.

The purpose of study two was to explore the perceptions of students, parents, classroom teachers, and administrators on physical education in Colorado. The results of this study were presented based on the perceptions of four groups of stakeholders--students, parents, classroom teachers, and administrators--on physical education at their/their children's school in Colorado. Stakeholders shared their insights with respect to the purpose of physical education, the impact of physical education on children, the learning environment, and suggestions to improve physical education. Overall, students and administrators had a good awareness of physical education in their schools, followed by classroom teachers, and parents who had some understanding. Stakeholders believed that the schools provided effective physical education for students and valued the role of physical education in students' physical health and ability to be physically active for their lifetimes. Each group of stakeholders had their own views on the impact of physical education and provided their own suggestions for the implementation and improvement

of physical education in the relevant schools. Further, seven implications were offered based on the results of this study for the implementation of physical education in school. In conclusion, stakeholders believed physical education has the potential to contribute to children's physical and mental health, social skills, academic learning, and positive behaviors.

According to the social ecological model, physical education is influenced by four external layers: student, school and parent, community, and policy (Bronfenbrenner, 1992). Therefore, we can take into consideration these four factors for the implementation and improvement of physical education at schools. Besides, according to the results of this dissertation, stakeholders believed highly qualified physical education teachers include a variety of physical activities and sports in class, deliver appropriate instruction through multiple teaching techniques, conduct assessment to measure student learning, and provide enjoyable learning environment for all students.

Additionally, this dissertation provides insight into the current state of physical education in Colorado, which provides a baseline to assist policy makers in building feasible legislation, associated with for example, requirements, instructional time, funding, and so on. Further, these studies inform practice for improvement that schools can use to find creative ways to tackle the challenges of implementing physical education for children in their schools. For example, schools must emphasize policy encouraging quality physical education. Additionally, this dissertation has the potential to offer pedagogical and curriculum implications for schools, and physical education teachers can take into consideration stakeholders' perceptions of physical education when designing their physical education programs. For instance, physical education teachers, if they are not already doing so, should consider collaborating with academic teachers to create interdisciplinary units of instruction.

Several recommendations remain open for future research based upon the results presented in this dissertation. First, in study one, physical education teachers completed the Status of Physical Education Survey which is a self-reporting survey. In order to increase the objectivity of the study, future research can include other data sources, such as observation using the System for Observing Fitness Instruction Time (SOFIT; McKenzie, 2015), physical education assessment of three learning domains (i.e., affective, cognitive, psychomotor), the SHAPE America physical education program checklist (SHAPE America, 2015a), fitness tests, and so on. Second, this dissertation conducted a brief comparison between elementary and secondary physical education programs with descriptive statistics (i.e., frequency and percentage), and further studies can do statistical tests to compare physical education in these two grade levels. Third, Colorado is a local-control state where school districts are able to create their own policies and requirements associated with physical education, and thereby it will be beneficial to explore physical education in a school district using case study, providing a tailored proposal for its implementation and improvement in this district. Fourth, future research can explore the perceptions of parents with different backgrounds because their insights may vary by their ethnicity, culture, and level of education. Lastly, this dissertation focused on the insights of the physical education teachers, students, parents, classroom teachers, and administrators, further exploration is needed to explore the perceptions of community and policymakers on the implementation of physical education at school according to the social ecological model.

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APPENDIX A

STATUS OF PHYSICAL EDUCATION IN COLORADO SURVEY

STATUS OF PHYSICAL EDUCATION IN COLORADO SURVEY

You have been invited to complete this survey because you are a physical education teacher and you have the most knowledge about physical education at your school.

This 19-question survey aims to learn about TYPICAL physical education within your school. More specifically, this survey is to explore physical education before the pandemic (before March 2020).

Please complete the survey as honestly as possible regarding TYPICAL physical education in your school. Thank you for your time.

I understand the information I am providing on this survey relates to physical education in my school BEFORE the pandemic (before March 2020). [Click below]

School Demographics

1. What is the name of your school? _____
2. In what school district is your school located?
 - o 178 school districts will be listed here (Dropdown question)
3. What grade levels does your school include? (check all that apply)
 - a. Pre-Kindergarten
 - b. Kindergarten
 - c. 1st grade
 - d. 2nd grade
 - e. 3rd grade
 - f. 4th grade
 - g. 5th grade
 - h. 6th grade
 - i. 7th grade
 - j. 8th grade
 - k. 9th grade
 - l. 10th grade
 - m. 11th grade
 - n. 12th grade

Status of Physical Education in Your School

4. Is physical education required for all students at your school (e.g., for graduation, promotion to the next grade level, automatically scheduled)?

- Yes
- No

Please briefly explain the requirement:

Instruction Time

5. How many class sessions per week, on average, are provided for students enrolled in physical education?

- a. 5
- b. 4
- c. 3
- d. 2
- e. 1
- f. Less than one
- g. Other: _____

Please provide more detail related to how frequently physical education is provided in your school:

6. How many minutes, on average, is each physical education class (e.g., 45)?

Please provide more detail related to the length of physical education classes provided in your school:

Class Size

7. Do physical education classes have student/teacher ratios comparable to that of other academic classes?
- a. Yes
 - b. The ratios are somewhat larger (up to one and a half times larger) than the ratios for most other classes
 - c. The ratios are considerably larger (more than one and a half times larger), but there are plans to reduce it
 - d. The ratios are considerably larger (more than one and a half times larger), and there are no plans to reduce it

Please provide more detail related to class size for each grade level in physical education:

Moderate to Vigorous Physical Activity--MVPA

8. Are students engaged in moderate to vigorous physical activity (MVPA) at least 50% during most or all physical education class sessions?
- a. Yes, most or all classes
 - b. During about half the classes
 - c. During fewer than half the classes
 - d. During none of the classes

Please provide more detail that describes how you know students are getting MVPA (or not) in physical education (e.g., describe any tools used to measure MVPA):

Standard-Based Curriculum

9. Does your school's physical education curriculum align with state or national standards?
- Yes
 - For the most part
 - Somewhat
 - No

Please provide more detail related to standards-based curriculum in your physical education program (e.g., state or national standards; alignment process):

Assessment

10. Is student achievement in physical education assessed regularly throughout the school year?
- Yes
 - No

Please provide more detail on assessment to measure student achievement (i.e., what kinds of assessments teachers use, when students are assessed, etc.):

Exemption or Waiver for Physical Education

11. Does the school allow exemptions or waivers for physical education (e.g., for religious reasons, for health reasons, etc.)?
- No
 - No, but there are plans to start allowing exemptions or waivers
 - No, but occasional exceptions or waivers are made
 - Yes, our school allows exemptions or waivers for physical education

Please provide more detail of the exemption/waiver policy and/or other reasons physical education can be waived for:

Substitution for Physical Education

12. Does your school allow the substitution of other activities (e.g., interscholastic sports, ROTC, etc.) for physical education class time or credit requirements?
- a. No
 - b. No, but there are plans to start allowing substitutions
 - c. No, but occasional substitutions are made
 - d. Yes, our school allows substitutions for physical education

Please provide more detail of the substitution policy and/or examples of other activities that physical education can be substituted for:

Withholding Students from Physical Education

13. Does your school allow the withholding of students from physical education for academic or disciplinary reasons?
- a. No
 - b. No, but there are plans to start allowing withholding
 - c. No, but occasional withholdings are made
 - d. Yes, our school allows withholding students from physical education

Please provide more detail on whether or not physical education can be withheld and/or some of the reasons physical education is withheld from students:

Equity

14. Are learning opportunities equitable for all students in physical education class (e.g., all-gender, high- and low- skilled students, students of all races, etc.)?
- a. Yes
 - b. For most of students
 - c. Somewhat
 - d. No

Please provide more detail related to how learning opportunities in physical education are equitable:

Inclusion

15. Do students with disabilities receive physical education that is equitable with their peers?
- a. Yes
 - b. Yes, for most students with a disability
 - c. Somewhat
 - d. No

Please provide more detail related to physical education opportunities for students with disabilities in your school (e.g., inclusion, adapted physical education, etc.):

Licensed Teacher

16. Are all physical education classes taught by licensed teachers who are certified or endorsed to teach physical education?
- a. Yes, all are
 - b. Most classes are
 - c. Some classes are
 - d. No classes are

Please provide more detail related to the qualifications of those who teach physical education in your school:

District level Policy

17. Does your school district have a policy encouraging quality physical education (e.g., support for schools working to improve physical education, accountability measures, etc.)?
- a. Yes
 - b. No

Please provide more detail about your district-level policy related to physical education (e.g., whether or not there is language in the policy that requires or recommends a specific number of minutes for physical education, etc.):

Funding

18. Does your school DISTRICT adequately fund physical education in your school?
- a. Yes
 - b. No

Please provide more detail related to how much funding is provided from the district each year for physical education:

19. Does your school provide adequate funding for physical education?
- a. Yes
 - b. No

Please provide more detail related to funding is received from your school for physical education (e.g., how much funding, where the funding comes from, etc.):

- If you are willing to participate in a 30-45 minute interview (on Zoom or the phone) about physical education in your school, please enter your name and email address below:

APPENDIX B

INTERVIEW GUIDE FOR PHYSICAL EDUCATION TEACHERS

INTERVIEW GUIDE FOR PHYSICAL EDUCATION TEACHERS

1. Briefly introduce yourself.
 - Your name, school district, school name, grade level of your school, the subject you teach, the grade you teach, years of teaching experience, certificate of physical education, etc.
2. Can you tell me about the physical education program in your school?
3. Are you aware of the PE for All Colorado model policy?
 - If yes, describe the intent to how your physical education program meets the recommendations in PE for All.
 - If not, briefly overview the policy.
4. Questions according to survey results by topic area. For example:
 - Elaborate why you indicated there is not sufficient funding for physical education in your school.
 - Why is physical education not prioritized in your school?
 - Other questions related to:
 - Instruction time
 - Class size
 - Moderate to vigorous physical activity
 - Standard-based curriculum
 - Assessment
 - Replacement for physical education
 - Exemption or waiver for physical education
 - Substitution for physical education
 - Withholding from physical education
 - Equality
 - Inclusion
 - Licensed teachers
 - District level policy
5. What are the barriers to the implementation of physical education in your school?
 - How do these barriers impact the implementation of physical education?
 - What support do you need to implement quality physical education?

6. Do you have any suggestions/thoughts regarding implementation of quality physical education in Colorado?
 - Are there any suggestions to policy makers?
 - Are there any suggestion to school districts/school principals?
7. Is there anything else you would like to add about your physical education program?

APPENDIX C
INSTITUTIONAL REVIEW BOARD APPROVAL



Date: 10/22/2020
 Principal Investigator: Xiaoping Fan
 Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**
 Action Date: 10/22/2020
 Protocol Number: [2009011217](#)
 Protocol Title: The Status of Physical Education in Colorado
 Expiration Date:

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(702) for research involving

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).

You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:



- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at nicole.morse@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - <http://hhs.gov/ohrp/> and <https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/>.

Sincerely,

Nicole Morse
Research Compliance Manager

University of Northern Colorado: FWA00000784

APPENDIX D
EMAIL INVITATION TO TAKE SURVEY

Greetings Colorado physical education teacher!

My name is Xiaoping (Ping) Fan, and I am currently a Ph.D. student at the University of Northern Colorado working on my dissertation study. I am conducting research to explore the status of physical education in Colorado, and as a physical education teacher in our state, your perspective is extremely valuable. Therefore, I am inviting you to complete an online survey which focuses on physical education in Colorado BEFORE the pandemic.

The survey should only take about 10-15 minutes to complete. If possible, please take this survey by Monday, November 9th.

Your participation in this study will contribute to implementing and promoting quality physical education in Colorado. If you have questions about this study, please contact me at xiaoping.fan@unco.edu.

Thank you very much for your time.

To begin the survey, click on the following link:
https://unco.co1.qualtrics.com/jfe/form/SV_869tef15EdMvXpj

Best Regards,
Xiaoping (Ping) Fan, M.A.
Graduate Teaching Assistant
Ph.D. Candidate, Sport Pedagogy
School of Sport and Exercise Science
University of Northern Colorado
Office: Gunter 1770

APPENDIX E
CONSENT FORM FOR SURVEYED PHYSICAL
EDUCATION TEACHERS



College of Natural & Health Sciences
School of Sport & Exercise Science

Consent Form for Participation in Research

Project Title: The Status of Physical Education in Colorado

Xiaoping Fan, M.A.
School of Sport and Exercise Science
Xiaoping.Fan@unco.edu
C: (xxx) xxx-xxxx

Jaimie McMullen, Ph.D.
School of Sport and Exercise Science
Jaimie.McMullen@unco.edu
O: (970) 351-1740

Greetings! My name is Xiaoping (Ping) Fan, and I am currently a Ph.D. student at the University of Northern Colorado working on my dissertation. I am conducting research to explore the status of physical education in Colorado. If you choose to participate in this study, I will ask that you participate in a web-based survey that will last approximately 10-20 minutes. Your participation in this study will contribute to implementing and promoting physical education within school in Colorado.

The survey consists of 19 questions divided into two sections: schools' demographics and the status of physical education in their school. There is an open-ended question at the end of the survey to ask you whether or not you are willing to participate in a 30-45 minutes, audio recorded interview. Your response to the survey and interview will remain confidential, and pseudonyms will be used in any future reports.

Risks to you are minimal. You may feel uncomfortable sharing the details of your physical education program. There is no direct benefit from taking part in this study.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Please take your time to read and thoroughly review this document and decide whether you would like to participate in this research study. If you decide to participate, your completion of the research procedures indicates your consent. Please keep or print this form for your records. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse in the Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

If you have questions about the study, you can contact the investigator Xiaoping (Ping) Fan, xxx-xxx-xxxx or xiaoping.fan@unco.edu.

If you voluntarily agree to participate in this study, please click on the button (arrow) below to proceed to the survey.

APPENDIX F

**EMAIL TO PHYSICAL EDUCATION TEACHERS FOR
INTERVIEW SCHEDULES**

Dear [Teacher Name],

My name is Xiaoping (Ping) Fan, and I am a Ph.D. student at the University of Northern Colorado. Thank you very much for taking the time to complete the survey I sent out (i.e., Status of Physical Education in Colorado Survey). Additionally, I really appreciate your interest in completing an interview to share your perceptions of physical education at your school before the pandemic.

I understand you are very busy and want to be as accommodating to your schedule as possible. Therefore, if you could provide THREE times that you would be available for a 45-minute interview anytime between November 10th and November 24th--I will then be able to schedule a time that works for both of us. I have availability most of the time, such as early morning, day, night, and weekend.

We will be doing the interview by Zoom. So please let me know if you need information about downloading and using Zoom.

Please reply to this email by Sunday, November 15th with THREE days and times that you are available for the interview (in 45min blocks).

To show my appreciation for your participation in this study, I will provide you with a \$20 Amazon gift card. Again, thank you very much for your interest in this interview. Your participation will contribute to the implementation of physical education in the state. I am happy to answer any questions you might have.

Best Regards,

Ping

Xiaoping (Ping) Fan, M.A.
Graduate Teaching Assistant
Ph.D. Candidate, Sport Pedagogy
School of Sport and Exercise Science
University of Northern Colorado
Office: Gunter 1770

APPENDIX G
WRITTEN CONSENT DOCUMENT FOR PHYSICAL
EDUCATION TEACHERS



College of Natural & Health Sciences
School of Sport & Exercise Science

Informed Consent for Participation in Research

Project Title: The Status of Physical Education in Colorado

Xiaoping Fan, M.A.
School of Sport and Exercise Science
Xiaoping.Fan@unco.edu
C: (xxx) xxx-xxxx

Jaimie McMullen, Ph.D.
School of Sport and Exercise Science
Jaimie.McMullen@unco.edu
O: (970) 351-1740

Greetings! My name is Xiaoping (Ping) Fan, and I am currently a Ph.D. student at the University of Northern Colorado working on my dissertation. I am conducting research to explore the status of physical education in Colorado. If you choose to participate in this study, I will ask that you participate in one interview that will last approximately 30-45 minutes so that I can learn about your unique ideas regarding this specific topic. Your involvement will provide me with insight into physical education in Colorado.

You may experience some discomfort when discussing implementation barriers related to physical education in your school. There is no direct benefit to being in the study. This interview process will take place via video call (i.e., Zoom) at a date and time you agree to. I will audio record the interview, and all audio and audio transcriptions will be held on a password-protected laptop computer. The data will be stored in a locked drawer when not in use. Voice recordings will be erased three years after the study. You will be provided with a pseudonym, and your identity will be kept confidential in any results that are disseminated from this study. Myself and my research advisor will be the only ones with access to the data.

I truly appreciate your interest in this study. Remember, your participation in this study is voluntary and if you decide not to participate in this study at any time you can stop and withdraw. Your decision will be respected and will not result in a loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you for your reference. If you have any concerns about your selection or

treatment as a research participant, please contact Nicole Morse in the Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Participant Full Name (please print)

Participant Signature

Date

Researcher Signature

Date

APPENDIX H
INSTITUTIONAL REVIEW BOARD APPROVAL



Date: 10/22/2020

Principal Investigator: Xiaoping Fan

Committee Action: **IRB EXEMPT DETERMINATION – New Protocol**

Action Date: 10/22/2020

Protocol Number: [2009011194](#)

Protocol Title: Stakeholders' perceptions of physical education in Colorado

Expiration Date:

The University of Northern Colorado Institutional Review Board has reviewed your protocol and determined your project to be exempt under 45 CFR 46.104(d)(701) (702) for research involving

Category 1 (2018): RESEARCH CONDUCTED IN EDUCATIONAL SETTINGS. Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Category 2 (2018): EDUCATIONAL TESTS, SURVEYS, INTERVIEWS, OR OBSERVATIONS OF PUBLIC BEHAVIOR. Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met: (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects; (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by 45 CFR 46.111(a)(7).



You may begin conducting your research as outlined in your protocol. Your study does not require further review from the IRB, unless changes need to be made to your approved protocol.

As the Principal Investigator (PI), you are still responsible for contacting the UNC IRB office if and when:

- You wish to deviate from the described protocol and would like to formally submit a modification request. Prior IRB approval must be obtained before any changes can be implemented (except to eliminate an immediate hazard to research participants).
- You make changes to the research personnel working on this study (add or drop research staff on this protocol).
- At the end of the study or before you leave The University of Northern Colorado and are no longer a student or employee, to request your protocol be closed. *You cannot continue to reference UNC on any documents (including the informed consent form) or conduct the study under the auspices of UNC if you are no longer a student/employee of this university.
- You have received or have been made aware of any complaints, problems, or adverse events that are related or possibly related to participation in the research.

If you have any questions, please contact the Research Compliance Manager, Nicole Morse, at 970-351-1910 or via e-mail at nicole.morse@unco.edu. Additional information concerning the requirements for the protection of human subjects may be found at the Office of Human Research Protection website - <http://hhs.gov/ohrp/> and <https://www.unco.edu/research/research-integrity-and-compliance/institutional-review-board/>.

Sincerely,

A handwritten signature in black ink that reads "Nicole Morse". A large, semi-transparent red watermark with the text "DRAFT" is overlaid diagonally across the signature.

Nicole Morse
Research Compliance Manager

University of Northern Colorado: FWA00000784

APPENDIX I

EMAIL TO SCHOOL PRINCIPALS FOR PERMISSION

Hello _____

I hope this email finds you well. My name is Xiaoping (Ping) Fan, and I am currently a Ph.D. candidate at the University of Northern Colorado working on my dissertation study. I am conducting research to explore the perceptions of students, parents/guardians, principals, and classroom teachers on physical education in Colorado. This study has the potential to impact state-wide policy related to physical education in Colorado and to help physical education teachers in general improve their practice.

I am emailing to ask your permission to do focus group interviews with members of your school community. The focus group interviews will be conducted virtually using video conferencing software (i.e., Zoom).

All participants will be recruited by sending (either electronically or in hard copy) copies of an information letter that describes the study. The physical education teacher at your school has agreed to help facilitate this process. Parents receiving this letter will have the option to consent for their own participation, and that of their child. My goal is to include 3-4 students (and their parents) and 3-4 classroom teachers from your school. The focus group interviews with students will take place via Zoom either at school (if instruction is currently in-person) or students will join from their homes. The physical education teacher (if at school) or the parent (if at home) will help set up the Zoom for students. The interviews with parents, classroom teachers, and principals will take place at a time that is convenient for them.

Additionally, the interview will last approximately 45-60 minutes. I will audio record the interview, and all audio and audio transcriptions will be held on a password-protected laptop computer and in a locked drawer when not in use. Voice recordings will be erased three years after the study. All participants will be provided with a pseudonym, and their identity will be kept confidential in any results that are disseminated from this study. Myself and my research advisor will be the only ones with access to this data.

Please let me know if I have your permission to move forward with this research within your school. I am happy to discuss this more with you via email or on a Zoom/phone call--and will also obtain any necessary district approvals.

Thank you very much for your consideration.

Best Regards,

Xiaoping (Ping) Fan

APPENDIX J
SCHOOL AND/OR SCHOOL DISTRICT APPROALS

Sunday, November 22, 2020 at 4:53:38 PM Mountain Standard Time

Subject: [External]Re: Request permission for an study - stakeholders' perceptions of physical education at schools

Date: Friday, November 20, 2020 at 9:35:48 AM Mountain Standard Time

From:

To: Fan, Xiaoping

Ping,

Thank you for reaching out. Your research and possible outcomes have the potential to positively influence the best practices of physical education! Accordingly, you do have my permission to move forward with this research at Please let me know if you need any additional information or support from me.

Take care and Happy Thanksgiving!

Tuesday, December 15, 2020 at 1:18:33 PM Mountain Standard Time

Subject: [External]Re: Request permission for a study_stakeholders' perceptions of physical education in Colorado

Date: Tuesday, November 24, 2020 at 9:17:15 AM Mountain Standard Time

From:

To: Fan, Xiaoping

Good morning, Xiaoping. Most certainly, you have my permission to do this study!

1/21/21

Xiaoping Fan,

Please consider this document as formal approval for you to conduct research within [redacted] based on your application materials originally received 1/14/21. Research project name: "Stakeholders' Perceptions of Physical Education in."

* Date of project: Between January 2021 and June 2021 (If additional time is needed to complete the study, please notify me via email).

* I would like to add two conditions: 1) It is requested that the researcher provide [redacted] an electronic copy of the project summary at the end of the project, and 2) if you decide to submit an article for publication, please provide an electronic version of the article to [redacted] when completed.

* Priority consideration for future research partnerships with [redacted] will be given to individual researchers that have a demonstrated track record of submitting final reports for [redacted] consideration.

* Please feel free to use this email in your correspondent with [redacted] schools and personnel regarding this research project.

This approval letter signifies that you have successfully met all [redacted] criteria for conducting research within [redacted]. Approval from building principals where research activities may occur is also needed prior to beginning research activities at any [redacted] school. Providing principal(s) with a copy of this letter is an important step in your communication with principals, but please keep in mind that principals have the right to refuse to participate in any proposed research activities that involve the students, teachers, or facilities that they are responsible for. Furthermore, a principal or the superintendent of [redacted] may exercise their right of refusal at any point during the implementation of an authorized research proposal. Thank you for considering [redacted] School District as a research partner. Please feel free to contact me if you have any questions, and I look forward to reading your findings.

Wednesday, January 27, 2021 at 2:27:41 PM Mountain Standard Time

Subject: [External]RE: Request permission for a physical education study
Date: Wednesday, January 27, 2021 at 11:11:34 AM Mountain Standard Time
From:
To:
CC: Fan, Xiaoping
Attachments: image001.png, image002.png

Yes, Ping has the green light. If/when she comes into the building please do a symptom self-check, mask up, socially distance, etc., etc. Thanks.

APPENDIX K
INTERVIEW GUIDE FOR STAKEHOLDERS

INTERVIEW GUIDE FOR STUDENT

Physical education at YOUR SCHOOL before COVID-19 (March 2020)!

1. Tell me a little bit about yourself--like your name, grade, favorite subject in school and maybe what you do for fun outside of school.
2. What do you think is the purpose of physical education?
 - Do you think that your PE classes meet this purpose?
3. Could you tell me what a really awesome Physical Education class looks like?
4. How does participating in PE make you feel?
 - Does PE have an influence on you--for example, does it make you feel healthier?
5. Let's talk a little bit about physical education at your school prior to the pandemic....
 - What did a physical education period look like (e.g., time for dressing out, warm-up/instant activity, activity, etc.) before COVID-19?
 - Was PE required for all students at your school?
 - Instruction time
 - How many PE class per week did you have?
 - How many minutes was each PE class?
 - Class size
 - How many students were there in the PE class? Is that the same as the number of students in other classes in school?
 - Physical activity in PE (MVPA)
 - How hard do you typically have to work in PE?
 - Are any tools used to measure physical activity in the PE class--for example, heart rate monitors, pedometers?
 - Standard-based curriculum
 - What kinds of things do you do/learn in PE class (e.g., knowledge, skills, respect, teamwork, etc.)?

- Assessment
 - Do you have to complete any tests or other assessments for measuring your learning in PE? Tell me about these assessments?
- Exemption or waiver for physical education
 - Do you or any of your friends or classmates not take PE class because of religious reasons, health reasons, or other reasons?
- Substitution for physical education
 - Do you or any of your friends or classmates not take PE class because of involvement in other activities (e.g., school sports, dance club, ROTC, etc.)?
- Withholding from physical education
 - Have you or any of your friends or classmates been kept in the classroom instead of going to PE because you weren't finished school work or because you got in trouble?
- Equity
 - Does everyone in the PE class have the opportunity to learn including people from all-genders, high- and low- skilled students, students of all races, etc.)?
- Inclusion
 - What about students with disabilities...do they participate with you in PE and also have the same opportunity to learn and participate as you?
- Licensed teachers
 - Tell me about your physical education teacher(s)? Are they highly qualified?
 - What kinds of things make you think they are good at teaching physical education? What are some of the things you wish they did better or different?
- District level policy
 - Do you know if your school district has a policy that states how much physical education you need to take at school?

- Funding
 - Does your PE program have enough equipment and facilities for you to be able to participate in all the activities the teachers plan?

- 6. Sometimes I get to talk to people who make decisions about how much PE is offered in schools....what would you want me to tell them about how we can improve PE in schools?

- 7. Is there anything else you would like to tell me about physical education at your school?

INTERVIEW GUIDE FOR PARENT

Physical education at YOUR CHILD'S SCHOOL before COVID-19 (March 2020)!

1. Please briefly introduce yourself.
2. What do you think is the purpose of physical education?
 - Do you think that physical education in your child's school achieves this purpose?
3. How do you think participation in PE influences children? For example, does it make them healthier, a better teammate, etc.?
 - Did you see these influences of PE on your own child/children?
4. In a perfect world, what would a high-quality physical education program look like to you?
5. Now we will consider some specifics about physical education at your child's school--if you don't know some of this information, that's fine...just tell me what you do know!
 - What does a typical physical education class period look like at your child's school before the pandemic (e.g., time for dressing out, warm-up/instant activity, activity, etc.)?
 - Do you know if PE required for all students at the school?
 - Instruction time
 - How many class periods per week were provided to a student enrolled in PE?
 - How many minutes was each PE class period?
 - Class size
 - Do you know how many students are in each PE class? Is that the same as the number of students in other academic classes?
 - Physical activity in PE (MVPA)
 - How hard does your child have to work in PE class?
 - Do you know what tools are used to measure physical activity in the PE class--for example heart rate monitors, pedometers, etc.?

- Standard-based curriculum
 - Does the PE curriculum use national or state standards? Do you know the standards for physical education in Colorado?
- Assessment
 - Are there assessments used to measure students' learning in PE? What kinds of assessments? How are grades determined? Report card from PE teacher?
- Replacement for physical education
 - Did the school allow for replacement of PE by other physical activities (i.e., recess, classroom movement time, before/after school activities, etc.)?
- Exemption or waiver for physical education
 - Did the school allow for exemptions or waivers from PE for religious or health reasons? Or other reasons?
- Substitution for physical education
 - Did the school allow for the substitution of other activities like school sports, ROTC, etc. for physical education class time or credit requirements?
- Withholding from physical education
 - Did the school allow the withholding of students from PE because they need more time to complete other work or for disciplinary reasons?
- Equity
 - Do you think that learning opportunities in PE are equitable for all students (e.g., all-gender, high- and low- skilled students, students of all races, etc.)?
- Inclusion
 - Do you think that students with disabilities receive PE that is equitable to that of their peers?
- Licensed teachers
 - Tell me what you know about the qualifications of your child's PE teacher.
 - What are some of the things the PE teacher does well? What are some of the things you wish the PE teacher did better or different?

- District level policy
 - Are you aware if the school district has a policy related to physical education?
 - Funding
 - Do you think that the school district/school adequately funds PE at your child's school?
6. Do you have any insight into some of the barriers or facilitators to implement quality PE at your child's school?
 7. Do you have any suggestions regarding the improvement of PE to policy makers?
 8. Is there anything else you would like to add about the physical education at your child's school?

INTERVIEW GUIDE FOR PRINCIPAL

Physical education at YOUR SCHOOL before the PANDEMIC (March 2020)!

1. Briefly introduce yourself: name, school, years, PA experience.
2. In your own words, what is the purpose/goal of physical education?
 - Did you see the PE in your school meet it?
3. What is the influence of PE on children & youth?
 - Did you see PE influence your students?
4. Could you tell me what a high-quality Physical Education looks like based on your understanding?
5. Describe the physical education at your school before the pandemic.
 - What did a physical education lesson look like (e.g., time for dressing out, warm-up/instant activity, activity, etc.)?
 - Was PE required for all students at your school?
 - Instruction time
 - How many class sessions per week were provided to a student enrolled in PE?
 - How many minutes was each PE class session?
 - Class size
 - How many students were there in PE classes? Is it the same as the number of students in other academic classes?
 - Physical activity in PE (MVPA)
 - How was the intensity of physical activity in PE class?
 - How/Who/What tools used to measure physical activity in the PE class?
 - Standard-based curriculum
 - Did the PE curriculum follow standards (national or state)?

- Assessment
 - Were there any assessments to measure students' learning, what kinds of assessments?
- Replacement for physical education
 - Did your school allow replacement for PE by other physical activities (i.e., recess, classroom movement time, before/after school activities, etc.)?
- Exemption or waiver for physical education
 - Did your school allow exemptions or waivers for PE (e.g., for religious reasons, for health reasons, etc.)?
- Substitution for physical education
 - Did your school allow the substitution of other activities (e.g., interscholastic sports, ROTC, etc.) for physical education class time or credit requirements?
- Withholding from physical education
 - Did your school allow the withholding of students from PE for academic or disciplinary reasons?
- Equity
 - Were learning opportunities equitable for all students in PE class (e.g., all-gender, high- and low-skilled students, students of all races, etc.)?
- Inclusion
 - Did students with disabilities receive PE that is equitable with their peers?
- Licensed teachers
 - Was the PE teacher(s) certified? Who teaches PE?
- District level policy
 - Did your district have policy to support the implementation of PE at the school?
 - Could you share with me?

- Funding
 - Did your school district adequately fund PE?
 - School
- 6. What were the things the PE program/teacher at your school did well?
What were the things the PE program/teacher at your school need to work on?
- 7. Barriers/facilitators to implement PE?
- 8. Do you have any suggestions regarding the improvement of PE to policy makers?
- 9. Have you heard about PE4All Colorado model policy? Is there anything else you would like to add about the physical education at your school?

INTERVIEW GUIDE FOR CLASSROOM TEACHER

Physical education at YOUR SCHOOL before the COVID-19 (March 2020)!

1. Please briefly introduce yourself: name, grade, subject, PA experience
2. What do you think is the purpose of physical education?
 - Do you think that physical education in your school achieves this purpose?
3. How do you think participation in PE influences children? For example, does it make them healthier, a better teammate, etc.?
 - Do you see these influences of the PE at your school on students?
4. In a perfect world, what would a high-quality physical education program look like to you?
5. Now we will consider some specifics about physical education at your school--if you don't know some of this information, that's fine...just tell me what you do know!
 - What does a typical physical education class period look like at your school before the pandemic (e.g., time for dressing out, warm-up/instant activity, activity, etc.)?
 - Do you know if PE required for all students at the school?
 - Instruction time
 - How many class periods per week were provided to a student enrolled in PE?
 - How many minutes was each PE class period?
 - Class size
 - Do you know how many students are in each PE class? Is that the same as the number of students in other academic classes?
 - Physical activity in PE (MVPA)
 - How hard do the students have to work in PE class?
 - Do you know what tools are used to measure physical activity in the PE class--for example heart rate monitors, pedometers, etc.?
 - Standard-based curriculum
 - Does the PE curriculum use national or state standards? Do you know the standards for physical education in Colorado?

- Assessment
 - Are there assessments used to measure students' learning in PE? What kinds of assessments? How are grades determined?
- Replacement for physical education
 - Did the school allow for replacement of PE by other physical activities (i.e., recess, classroom movement time, before/after school activities, etc.)?
- Exemption or waiver for physical education
 - Did the school allow for exemptions or waivers from PE for religious or health reasons? Or other reasons?
- Substitution for physical education
 - Did the school allow for the substitution of other activities like school sports, ROTC, etc. for physical education class time or credit requirements?
- Withholding from physical education
 - Did the school allow the withholding of students from PE because they need more time to complete other work or for disciplinary reasons?
- Equity
 - Do you think that learning opportunities in PE are equitable for all students (e.g., all-gender, high- and low- skilled students, students of all races, etc.)?
- Inclusion
 - Do you think that students with disabilities receive PE that is equitable to that of their peers?
- Licensed teachers
 - Tell me what you know about the qualifications of the PE teacher. What are some of the things the PE teacher does well? What are some of the things you wish the PE teacher did better or different?
- District level policy
 - Are you aware if the school district has a policy related to physical education?

- Funding
 - Do you think that the school district/school adequately funds PE at your school?
- 6. Do you have any insights into some of the barriers or facilitators to implement quality PE at your school?
- 7. Do you have any suggestions regarding the improvement of PE to policy makers?
- 8. Is there anything else you would like to add about the physical education at your school?

APPENDIX L
CONSENT DOCUMENT FOR PARENTS



College of Natural & Health Sciences
School of Sport & Exercise Science

Informed Consent for Participation in Research

Project Title: Stakeholders' Perceptions of Physical Education in Colorado

Xiaoping Fan, M.A.
School of Sport and Exercise Science
Xiaoping.Fan@unco.edu
C: (xxx) xxx-xxxx

Jaimie McMullen, Ph.D.
School of Sport and Exercise Science
Jaimie.McMullen@unco.edu
O: (970) 351-1740

Greetings! My name is Xiaoping (Ping) Fan, and I am currently a Ph.D. student at the University of Northern Colorado working on my dissertation study. I am conducting research to explore the perceptions of students, parents/guardians, principals, and classroom teachers on physical education in Colorado. If you/your child choose(s) to participate in this study, I will ask that you/your child participate(s) in one focus group interview that will last approximately 45-60 minutes so that I can learn about your/your child's unique ideas regarding this specific topic. A focus group interview is an interview that includes other people (typically 3-4) people who are all asked to share their perceptions on a particular topic--in this case insight into the physical education program at your child's school.

There are no known risks/discomforts associated with the study, and no direct benefits to being in the study. The focus group interview will be conducted virtually using free video conferencing software (i.e., Zoom) at a date and time you agree to. The number of participants in the group will be between three and four. I will audio record the interview, and all audio and audio transcriptions will be held on a password-protected laptop computer and in a locked drawer when not in use. Voice recordings will be erased three years after the study. You/your child will be provided with a pseudonym, and your/your child's identity will be kept confidential in any results that are disseminated from this study. Myself and my research advisor will be the only ones with access to this data.

I truly appreciate your/your child's interest in this study. Remember, your/your child's participation in this study is voluntary and if you/your child decide(s) not to participate in this study at any time you/your child can decide to stop and withdraw. Your/your child's decision will be respected and will not result in a loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if

you/your child would like to participate in this research. A copy of this form will be given to you/your child for the reference. If you/your child have/has any concerns about your/your child's selection or treatment as a research participant, please contact Nicole Morse in the Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

If you agree to participate in this study, please sign here:

Participant Full Name (please print) Participant Signature Date

* Please provide an email and/or phone number where you can be reached to schedule your interview: _____

Researcher Signature Date

If you agree for your child to participate in this study, please sign here:

Child's Full Name (please print) Participant Guardian Signature Date

** Your child's interview will be schedule with the help of the school.

Researcher Signature Date

APPENDIX M
ASSENT FORM FOR CHILD



College of Natural & Health Sciences
School of Sport & Exercise Science

Child Assent Form

Project Title: Stakeholders' Perceptions of Physical Education in Colorado

Xiaoping Fan, M.A.
School of Sport and Exercise Science
Xiaoping.Fan@unco.edu
C: (xxx) xxx-xxxx

Jaimie McMullen, Ph.D.
School of Sport and Exercise Science
Jaimie.McMullen@unco.edu
O: (970) 351-1740

I am Xiaoping (Ping) Fan from University of Northern Colorado. I am doing a study to find out what students, parents, principals, and classroom teachers think about physical education in Colorado. I am hoping you will agree to talk with me in a focus group conversation--which is just like a group conversation that will include some of your classmates. This will only take about 45 minutes and all you have to do is tell me your ideas about physical education at your school.

We will do the group conversation online using a software (i.e., Zoom). Your physical education teacher or parents will help set it up for you. You and your classmates (two to three) will be in the group. I will record our conversation and save the recording in my password-protected laptop computer. During our conversation, I will ask you all some questions about physical education at your school, and then each of you will have opportunity to answer the questions--just share what you know about your physical education class. I will keep all your answers private and will not show them to your teacher or parents. Also, I will use another name for you when I share the data and results with others so that no one can identify it is you.

There is no direct risk to you, but you might feel uncomfortable when sharing the details about physical education at your school. You can feel good about contributing to improving physical education in Colorado.

I truly appreciate your interest in this study. Your participation is voluntary. Your parents were asked if it is OK for you to be in this study. Even if they say it's OK, you are still fine whether or not to join the group conversation. You may stop being in the study at any time. If you have any concerns about your selection as a participant in this study, you or your parents can contact Nicole Morse in the Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

You can ask any questions you have, now or later. If you think of a question later, you or your parents can contact me - Xiaoping (Ping) Fan, xxx-xxx-xxxx, xiaoping.fan@unco.edu.

If you agree to participate in the group conversation, please sign here:

_____ Participant Full Name (please print)	_____ Participant Signature	_____ Date
_____ Researcher Signature	_____ Date	

APPENDIX N
CONSENT FORM FOR PRINCIPALS AND CLASSROOM
TEACHERS



College of Natural & Health Sciences
School of Sport & Exercise Science

Informed Consent for Participation in Research

Project Title: Stakeholders' Perceptions of Physical Education in Colorado

Xiaoping Fan, M.A.
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Jaimie McMullen, Ph.D.
School of Sport and Exercise Science
Jaimie.McMullen@unco.edu
O: (970) 351-1740

Greetings! My name is Xiaoping (Ping) Fan, and I am currently a Ph.D. student at the University of Northern Colorado working on my dissertation study. I am conducting research to explore the perceptions of students, parents/guardians, principals, and classroom teachers on physical education in Colorado. If you choose to participate in this study, I will ask that you participate in one focus group interview/individual interview that will last approximately 45-60 minutes so that I can learn about your unique ideas regarding this specific topic. Your involvement will provide me with insight into the physical education program within the school.

There are no known risks/discomforts associated with the study, and no direct benefits to being in the study. The interviews will be conducted virtually by me using video conferencing software (i.e., Zoom) at a date and time you agree to. The number of participants in the group will be between three and four. I will audio record the interview, and all audio and audio transcriptions will be held on a password-protected laptop computer. I will analyze all the data and the data will be stored in a locked drawer when not in use. Voice recordings will be erased three years after the study. You will be provided with a pseudonym, and your identity will be kept confidential in any results that are disseminated from this study. Myself and my research advisor will be the only ones with access to this data.

Feel free to contact me if you have any questions about the study, and if you agree to participate sign below.

I truly appreciate your interest in this study. Remember, your participation in this study is voluntary and if you decide not to participate in this study at any time you can decide to stop and withdraw. Your decision will be respected and will not result in a loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like to participate in this research. A copy of this form will be given to you for your reference. If you have any concerns about your selection or treatment as a research participant, please contact Nicole Morse in the Office of Research, Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910.

Participant Full Name (please print)

Participant Signature

Date

Researcher Signature

Date