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Rationale for the Essential Components of Physical Education

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Abstract

Purpose: This introductory article provides the context and rationale for conducting systematic literature reviews on each of the essential components of physical education, including policy and environment, curriculum, appropriate instruction, and student assessment.

Methods: Four research teams from Doctoral Physical Education Teacher Education programs (D-PETE) conducted these systematic reviews using the PRISMA guidelines process.

Results: This article explains the role of the national framework for increasing physical education and physical activity (i.e., Comprehensive School Physical Activity Program) in supporting the essential components of physical education. It also highlights the expectations for physical education and provides a brief history of these components. Lastly, this article highlights each of the articles presented in the special feature.

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Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Conclusion: Understanding the implementation of these components may be important for improving the physical education experience for all students and creating a foundation for lifelong physical activity and health.

Keywords

Assessment; curriculum; instruction; policy

Physical activity for children and adolescents is essential for their health and well-being (Centers for Disease Control and Prevention [CDC], 2011). Over the last three decades, significant publications such as *Healthy People 2000, 2010, 2020*, and *2030* (Office of Disease Prevention and Health Promotion [ODPHP], 2014), *Surgeon General's Report on Physical Activity and Health* (U.S. Department of Health and Human Services [USDHHS], 1996), *Physical Activity Guidelines for Americans* (USDHHS, 2008, 2018), *Guidelines for school and community programs to promote lifelong physical activity among young people* (CDC, 1997) *School Health Guidelines to Promote Healthy Eating and Physical Activity* (CDC, 2011), Global recommendations on physical activity for health (World Health Organization [WHO], 2010), and *Educating the Student Body: Taking Physical Activity and Physical Education to School* (Institute of Medicine [IOM], 2013) have emphasized the health benefits of physical activity ranging from reducing the risk of several chronic disease conditions and healthier bones and muscles to improving social and cognitive functioning and overall mental health. A common call to action across these publications is to create increased opportunities for children and adolescents to be more physically active throughout every day.

The *Physical Activity Guidelines for Americans*, 2nd edition (Guidelines) includes recommendations for children and adolescents ages 6 through 17 years to engage in 60 minutes or more of moderate-to-vigorous physical activity (MVPA) daily (USDHHS, 2018). Despite this guidance, less than one quarter (22%) of children and adolescents are getting the recommended amount of physical activity (Child and Adolescent Health Measurement Initiative, 2019). The Guidelines also include recommendations for providing young people opportunities and encouragement to participate in physical activities that are appropriate for their age, are enjoyable, and offer variety.

With the prevalence of physical inactivity being acknowledged as a primary public health issue (USDHHS, 2018; Owen et al., 2020), schools, specifically physical education and physical activity programs, have been identified as an ideal forum for contributing to daily health-enhancing physical activity (Community Preventive Services Taskforce, 2013; McKenzie & Lounsbery, 2009). Placing importance on physical education and its essential components including policy, curriculum, instruction, and assessment to increase physical activity knowledge and ability can help address this public health need (McKenzie & Lounsbery, 2013; SHAPE America, 2015). Therefore, as a nation, how can physical education be provided to all children and adolescents to help set a foundation for lifetime physical activity?

Increasing physical education and physical activity for children and adolescents

Schools serve as an ideal place for students to learn about and practice being physically active because most children and adolescents attend school (close to 60 million; U.S. Department of Education, National Center for Education Statistics, 2019). To help schools and students achieve this, the Comprehensive School Physical Activity Program (CSPAP), a national framework to increase physical activity opportunities before, during, and after school and to increase students' overall physical activity and health (Carson & Webster, 2020; CDC, 2019), was developed in the mid-2000s. The CSPAP framework also helps schools identify, organize, and provide opportunities within the school setting to help students be more physically active.

Physical education is the cornerstone of this national CSPAP framework. Because physical education relies on human movement to develop physical literacy, some think of physical activity and physical education as interchangeable when, in fact, they are not (SHAPE America, 2015). Physical education is an academic subject with a planned, sequential, kindergarten through high school (K–12) curriculum and instruction (SHAPE America, 2014). It provides students with the knowledge, skills, and confidence to be physically active for a lifetime.

Based on national guidance documents, it is recommended that schools provide daily physical education to students from K–12 (CDC, 2011; SHAPE America, 2014; SHAPE America, American Heart Association, 2016). Additionally, national health organizations recommend that schools provide 150 minutes per week of physical education for elementary school students, and 225 minutes per week for middle and high school students throughout the school year (CDC, 2011; SHAPE America, 2014). While there is principal and parent support for physical education (Active Schools, 2019), schools are not implementing these recommendations for physical education. Only 4% of schools nationwide—at the elementary, middle, and high school levels—are providing daily physical education and the recommended weekly minutes (CDC, 2015). Further, since *Healthy People 2000*, there has been a national health objective to increase the proportion of students participating in daily physical education. This objective has remained unmet across the subsequent *Healthy People 2010* and *2020* iterations. In fact, there was a decline in the percent of students attending daily physical education from 1991 to 1995 (42% to 25%) and then it remained stable from 1995 through 2017 (30%) (Clennin et al., 2018; Kann et al., 2018).

Quality physical education programs could provide effective learning experiences for physical activity including some minutes of their daily MVPA. It also can provide socialization toward developing an identity as a physically active person (Dishman, et al., 2015; IOM, 2013). Because of this, there is a clear need for daily physical education that helps students get their daily physical activity minutes and contributes to their educational experiences as well as their physical, social, and cognitive development (IOM, 2013).

Essential components of physical education

In 2015, SHAPE America published the *Essential Components of Physical Education* document to help schools develop effective physical education programs (SHAPE America, 2015). While these components have been previously addressed in national documents such as CDC's *School Health Guidelines to Promote Healthy Eating and Physical Activity* (CDC, 2011), SHAPE America re-envisioned and elevated the four essential components, including 1) policy and environment; 2) curriculum; 3) appropriate instruction; and 4) student assessment. Within each essential component there are actionable criteria; see Figure 1 for the specific aspects.

- The *policy and environment* component raises awareness of the critical policies and environmental factors that need to be in place to ensure physical education is part of a well-rounded education for all students. Key policies and environmental factors include providing daily physical education; prohibiting waivers, substitutions, and exemptions; limiting class size; not assigning or withholding physical activity as punishment; ensuring full inclusion of all students in physical education; and having state-licensed or state-certified teachers who are endorsed to teach physical education (SHAPE America, 2015). Expectations for physical education practices maybe guided by clear policy at the school, district, and state levels.
- The *curriculum* component emphasizes the importance for school districts and schools to establish a written physical education plan. The curriculum identifies the grade-level content to be taught (including scope and sequence), guides appropriate instruction to implement the curriculum and identifies student assessments that will provide evidence of student learning. The curriculum should be based on national standards that provide school districts and schools with guidance and direction for identifying the student outcomes expected in physical education programs. Creating a well-designed, standards-based physical education curriculum can help ensure equitable physical education for all students.
- The *appropriate instruction* component addresses the effectiveness of implementing the curriculum to meet the diverse developmental levels of students in all grade levels, using evidence-based instructional skills. This can be accomplished by using a variety of pedagogical approaches such as maximizing the number of practice opportunities, working in small groups, limiting competition in class, and ensuring adequate equipment (SHAPE America, 2015). These instructional practices are used to help students master skills and keep students moderately to vigorously physically active and on task for at least 50% of class time.
- The *student assessment* component provides accountability on the effectiveness of instruction and meeting the physical education standards. Collecting and tracking data about student physical activity level and intensity and progress can be used to determine if they are meeting standards and outcomes, and

where adjustments might be needed in curricular offerings and/or instructional practices. The assessments should directly link to the intended outcomes of the lesson, unit, or program. A variety of assessments (e.g., checklists, rubrics) can be used to learn where students are from the beginning to the end of the lesson or unit, and whether they are moving toward meeting the field's content standards.

The essential components of physical education can help physical education leaders identify key policies and practices for physical education. Schools can use the *Physical Education Checklist* (https://www.shapeamerica.org/standards/guidelines/upload/Physical-Education-Program-Checklist.pdf) to assess whether practitioners are implementing established physical education policies, selecting and sequencing appropriate content, aligning instructional methods with learning goals, and using appropriate assessments. Continuously monitoring and identifying evidence supporting these components will help to better understand how they affect the implementation of physical education practices and student outcomes.

Historical support for the essential components of physical education

Policy, curriculum, instruction, and assessment have been part of the fundamental structure of physical education for many years. As early as the 1920s, there was legislation requiring physical education instruction in many states (Shimon, 2020). Currently, over 80% of states require physical education in elementary, middle, and high schools, although fewer states have specific policies on time requirements and other expectations (SHAPE America, American Heart Association, 2016). Policy has played a critical role in creating awareness and expectations for physical education and has helped the growth of physical education.

Through the 1950s, physical education was driven by the importance of students learning through play and the ability of physical education to contribute benefits beyond the physical well-being of students (Livingston, 1996; Shimon, 2020). However, between the 1950s and 1970s, curricular and instructional approaches shifted from a focus on games and sports to more physical conditioning (Livingston, 1996; Shimon, 2020), with an emphasis on improving fitness levels. The publication of the Surgeon General's Report on physical activity and health constituted a fundamental shift in physical education from emphasizing improvement in students' physical fitness (i.e., the product) toward promoting student engagement in health-enhancing physical activity (i.e., the process; USDHHS, 1996). This prompted many curricular interventions to be developed and systematically evaluated in the 1990s through the mid-2000s including Sports, Play, and Active Recreation for Kids (SPARK), the Child and Adolescent Trial for Cardiovascular Health (CATCH) now called the Coordinated Approach to Child Health, and the Middle School Physical Activity and Nutrition (M-SPAN) that focused on achieving motor, cognitive, and social skills, through helping students increase their physical activity levels during and beyond physical education (McKenzie et al., 1996, 2004; Sallis et al., 1997).

In the 1990s, there was a shift to focus on accountability for student learning or achievement as a result of national testing and standards. This led to the development of high academic standards; more rigorous and challenging assessments to measure those standards; and

accountability systems to assess if students reach these standards. However, physical education was not included in this accountability movement, and consequently lost ground (e.g., time requirements). Despite the lack of accountability, SHAPE America and state-level organizations and agencies developed national standards for physical education that identify the content standards and specific grade-level outcomes for students that informed curricular and instructional development and student assessments (SHAPE America, 2014). These national standards elevate the rigor and expectations for physical education and emphasize overall fitness and skill development, although a recent report on physical education accountability highlights that only eleven states have systems in place for measuring student outcomes (Tsuda et al., 2019). There also has been a push for fitness assessments to promote students' cardiovascular and muscular health and prevent chronic conditions. The focus of physical education continues to evolve to provide a more comprehensive approach that promotes enjoyment, personal achievements, and exposure to a variety of sports, lifetime physical activities, and dance, recreational, and fitness activities.

As such, physical education is an essential part of school curricula that should be the cornerstone of a CSPAP. Despite parental and administrator support for physical education as a daily opportunity for students to learn and move, programming is sometimes questioned and often limited in terms of staff and offerings. Therefore, examining the evidence and elevating the strengths and gaps of these four essential components of physical education could garner support for and help inform the direction and future of effective physical education programs.

Brief overview of the review articles

This feature includes systematic reviews of each essential component of physical education. The reviews provide a conceptual overview of each component, the types of study designs and analytical methods used to examine these components, an explanation of the association between the component and different aspects of physical education programming and student outcomes, and an overview of the strengths and weaknesses of that component. Each study article adds to the greater picture of the implementation of the essential components and actionable criteria in the field of physical education, from kindergarten through 12th grade, and provides direction for future research. Each component was examined separately and aligns with the components identified in SHAPE America's (2015) *Essential Components of Physical Education* document, specifically, (1) policy and environment; (2) curriculum; (3) appropriate instruction; and (4) student assessment.

In the first article, Burson, Mulhearn, van der Mars, and Castelli address the *policy and environment* component of physical education. They provide a review of physical education policy research to determine its effects on the environment and programming. Research has shown that lack of policy support might affect whether schools adopt and implement physical education policies and practices. Strongly worded, well-funded, and well-monitored physical education policies have the potential to improve physical education programs and increase students' physical activity levels. Therefore, this review highlights emergent themes of adherence, policy strength, implementation barriers, and lack of accountability as influential aspects of physical education policy and their effect on the delivery of effective

physical education programming. The authors also identify gaps across these themes that need to be addressed by future research.

The next article by Pfledderer and Brusseau focuses on physical education curriculum. The authors explore associations between specific physical education curricular models and student outcomes including physical activity and fitness, psychosocial variables, classroom behavior, and knowledge acquisition. They also attempt to align the national standards with student outcomes to better understand what national standards are being addressed through physical education curricula research. The findings shed light on which curricular models may be beneficial to student outcomes. The authors also explain the need for curricula research to align student outcomes with national standards.

In the third article, Nesbitt, Fisher, and Stodden identify research studies examining *appropriate instruction* in physical education. Instructional methods help implement the curriculum effectively by linking the learning activities with identified student objectives and outcomes for learning. The authors examine how different instructional methods are associated with four types of student outcomes including student engagement and participation; motivation; physical activity and fitness; and student learning. They also attempt to further understand the link between teacher effectiveness and student learning outcomes because effective instruction by the teacher has been shown to contribute to increased physical activity and learning.

In the last review article, Killian and Woods conduct a scoping review for *student assessment* in physical education. Student assessment is a critical part of the teaching and learning process and needs to be addressed in the formative stages of curriculum development and instruction. The authors identify studies that examine teachers' assessment practices in physical education and provide a comprehensive summary of the study characteristics including the location of the study; whether assessment practices are linked to policy; assessment technique; learning domains; study context; and research design. The authors also examine the effect of assessment practices on student learning outcomes to better understand how different assessment techniques can demonstrate what students know in developmentally appropriate ways.

To bring this special feature to a close, Bryant and colleagues summarize the findings across all four reviews and identify common gaps and research needs for the implementation of the essential components of physical education. They also set the future direction for improving the physical education experience for all students by better understanding and addressing these four essential components of physical education.

What does this feature add?

While there is not enough empirical research to conduct a meta-analytic or statistical analysis of the effect sizes, the systematic reviews do provide a snapshot of the existing research and practice for the essential components of physical education. These reviews may inform how policy, standards-based curriculum, proper content selection and instruction, and adequate student assessments influence student knowledge and skills to achieve and

maintain a health-enhancing level of physical activity and fitness. These reviews also shed light on the lack of empirical studies for the criteria listed under each of the essential components as well as a series of articles that will be published in Research Quarterly for Exercise and Sport outlining a research agenda for physical education (Castelli & van der Mars, 2018). Continuing to understand the implementation of these components may be important for improving the physical education experience for all students and creating a foundation for lifelong physical activity and health.

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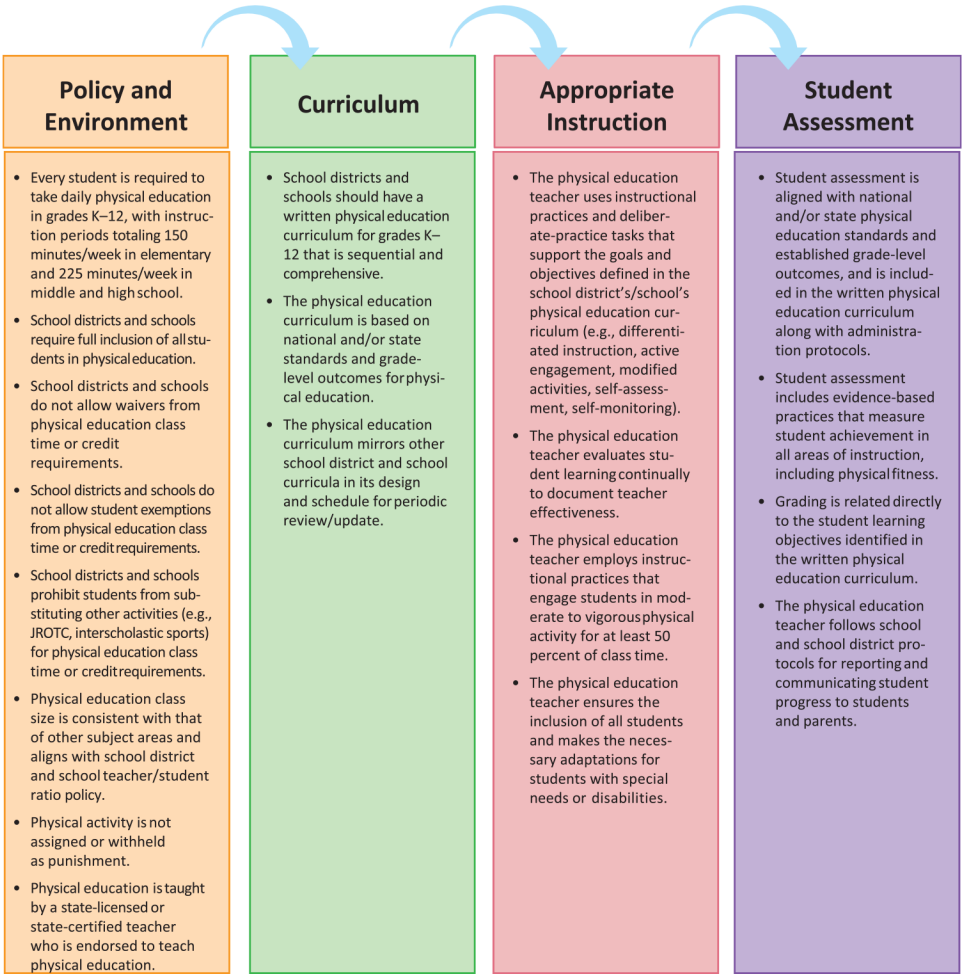

Figure 1.
Essential components of physical education.