

Implications of Physical Literacy for Research and Practice: A Commentary

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ABSTRACT

Physical literacy is a term that has increasingly gained popularity in recent years. A variety of individuals and organizations have promoted the use of the term internationally, and a variety of claims have been made for the benefits of using the term. A historical overview allows the reader to consider physical literacy as one of many terms that have gained popularity in the field and describes divergent views as well as areas of agreement concerning the term physical literacy. Three North American institutional approaches to physical literacy are discussed. Other issues are also discussed, including assessment and other literacy types (e.g., health, sports). The article is designed to provoke thought among professionals and representatives of institutions concerning physical literacy.

KEYWORDS

Literacy; physical education; physical literacy; sports

During the early and mid-20th century, there was considerable debate concerning definitions and goals of physical education. Sage (2003) noted that there was a “battle of systems.” The debate centered on different systems of gymnastics and formal training. In their 1927 text, Wood and Cassidy proposed “a new approach to physical education that refuted these traditional systems” (as quoted in Ennis, 2006, p. 43). Clark Hetherington, Luther Gulick, Thomas Wood, Rosalind Cassidy, Jay B. Nash, and Jesse Feiring Williams were leaders in efforts to create a “new physical education.” Williams’s (1959) statement that physical education is “education through the physical” is perhaps the most cited of the era and is a key feature of the new physical education (p. 2). Education “through the physical” was a departure from the education “of the physical” and opened the door for a more “modern” curriculum that included sports, games, and dance. Williams’s definition was proliferated in multiple editions of his text, *The Principles of Physical Education*, which was first published in 1927. This text influenced generations of physical educators taking introductory classes as part of their college training.

Central to the “new physical education” was the education of the whole child. For example, Williams (1964, p. 8) noted the “new understanding of the human organism in which wholeness of the individual is the outstanding fact.”

Let the sponsors of physical education have deep convictions about the tremendous importance of vigor

and vitality in peoples: let them assert, time and again, and everywhere, the strategic and imperative role of muscular activity in development, but let them guard against an unworthy exclusiveness that leaves them devoted to strength, with no cause to serve, skills, with no function to perform, and endurance with nothing worth lasting for. (Williams, 1964, p. 9)

Scores of other scholars and authors have offered definitions, including Bucher (1952) in multiple editions of his popular *Foundations of Physical Education*. Bucher provided an expanded definition of physical education but included many of Williams’s key phrases. Bucher found it necessary to differentiate physical education from “physical culture,” a name commonly used in Europe but also used by some physical educators and college programs during the early 20th century. It should be noted that formal European approaches to physical education referred to as “physical culture” were not the same as the non-school-based “physical culture” popularized by Bernarr MacFadden in his magazine (*Physical Culture*) in the early 1900s (Joyner, 2010).

During the mid-20th century, Brown and Cassidy (1963), in their text *Theory in Physical Education*, declared that physical education was a “school program.” However, others (Henry, 1964) argued for a discipline of physical education, beginning the movement to differentiate the profession (then primarily physical education) from the underlying body of knowledge (the discipline).

Much has been written about disciplinary and professional distinctions in our field (Corbin, 2002; Locke, 1990; Newell, 1990; Schary & Cardinal, 2015), and those discussions will not be reiterated here.

What is apparent is that definitions and names are important. Much time and effort have been expended on defining terms in our field and attempting to come to consensus. It took years to reach a reasonable degree of consensus on a definition of physical education and to differentiate it from earlier terms such as physical training and physical culture. There has been much debate related to naming our discipline. In recent years, the term kinesiology has emerged as the consensus for the name, but only after years of discussion. The former American Academy of Physical Education went through several name changes and is now the National Academy of Kinesiology (n.d.). Other professional organizations have adopted kinesiology in their names as well. Examples include the National Association for Kinesiology in Higher Education (<http://www.nakhe.org>) and American Kinesiology Association (www.americankinesiology.org). Nevertheless, even now, the name is not universally endorsed.

The evolution of current concepts of physical literacy

More than a few scholars have suggested that the use of the term “physical literacy” is relatively new. To be sure, the term has become more widely used in the last few years, but it is not new. References were made to physical literacy as early as the early 1900s, and C. H. McCloy discussed physical literacy in two articles in the late 1950s (McCloy, 1957a, 1957b). Fifteen years into the 21st century, approximately a century after the shift in terminology from physical culture to physical education, there is new interest in the term physical literacy. Many different people have now weighed in on the topic, just as they did on definitions of physical education and kinesiology in the previous century.

Traditionally, literacy refers to being “educated” or “cultured.” Early definitions of literacy referred only to the ability read and write (i.e., prose and document literacy).

Literacy is described as a “condition or quality” (Free Dictionary, n.d.), or “state of being” (Merriam-Webster, n.d.). Often the state of being is associated with being knowledgeable or informed about a particular subject or field. More recently, the term “literacy” has been used to include other domains, such as “oral, quantitative (numerical), computer and technical, problem-solving, and physical” (Corbin & Le Masurier, 2014, p. 423).

Still, the use of the term physical literacy has gained popularity in recent years. A recent global report on physical literacy by the Aspen Institute noted that England, Canada, and Wales have the most established physical literacy initiatives and “all deliver literacy programs primarily through sport and educational (institutional) systems” (Aspen Institute, 2015a, p. 2). M. Whitehead (2001, 2010) and others in Great Britain led the current physical literacy movement and were instrumental in the formation of the International Physical Literacy Association (IPLA), an organization dedicated to promoting physical literacy programs and research (IPLA, n.d.). As will be discussed later, a group of Canadian organizations recently held a consensus conference in an attempt to arrive at a consensus definition of physical literacy. More recently SHAPE America – Society of Health and Physical Educators (2014) adopted the term “physically literate person” (physical literacy) to replace the term “physically educated person” in its national physical education K–12 content standards. Other individuals and groups throughout the world have weighed in on the issue during the past three decades (see Aspen Institute, 2015a).

Physical literacy and institutions

Although many of the early writings were not on behalf of a specific institution, the use of the term physical literacy is often associated with specific physical education, physical activity, and sport-based organizations or government agencies (Aspen Institute, 2015a). These groups prepare definitions associated with their purposes, philosophies, and areas of expertise (see Figure 1). Often they claim physical literacy, or some components of physical literacy, as institutional objec-

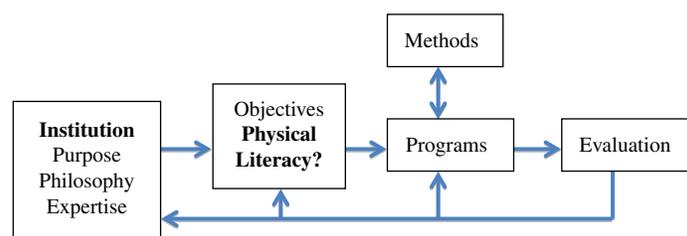


Figure 1. The institutional learning process, based on concepts from Corbin (1966).

Table 1. Characteristics most commonly associated with physical literacy.

Characteristic	Descriptors
Motor Skills	Motor skill Physical/movement competence Movement economy, efficiency
Cognitive Skills	Knowledge: principles, concepts, strategies Understanding, problem solving Communication, application, analysis Psychosocial/cognitive Self-management skills
Physical Activity	Engages in health-enhancing physical activity Has movement experience
Physical Fitness	Health-related fitness Skill-related fitness
Values Physical Activity	Values for health, enjoyment, challenge, and self-expression
Motivation	Intrinsic motivation
Confidence	Movement confidence Body awareness Self-confidence Self-efficacy
Interaction With Others	Social support Social interaction Creative expression
Perception of Environment	Awareness of environment and ability to adapt
Responsibility	Responsible personal and social behavior Respect for self and others
Responsibility for engagement for life	Application of literacy skills and characteristics throughout life.

Note. Compiled from sources listed in the references.

tives. Programs and methodologies are then developed with the intent of promoting institutional goals including physical literacy. Evaluation programs (e.g., Canadian Assessment of Physical Literacy [CAPL]) are then conducted to determine if institutional goals are met.

Institutional models and definitions

Because different institutions have different purposes and philosophies, the way in which physical literacy is defined varies from institution to institution. Accordingly, many different characteristics and descriptors have been used by a variety of individuals and groups when defining physical literacy. Lundvall (2015), using an exploratory literature overview technique, identified three major themes related to physical literacy in the published literature. One dominant theme was the educational role of physical literacy. Table 1 includes a list of characteristics most commonly used to describe physical literacy (from sources cited in the references for this article).

Many different institutions have adopted definitions for physical literacy and provide programs based on the definitions. In some cases, institutions of long standing have adopted the use of the term physical literacy. In other cases, institutions have banded together to promote physical literacy (e.g., Canadian Consensus Conference) or institutions have been created to promote

physical literacy and physical literacy research (e.g., IPLA). This article will focus on three North American institutional models. For more information on other institutional models, consult the recent reports of the Aspen Institute (2015a, 2015b).

Institutional models

The Canadian multi-institutional model and definition

As noted earlier, a recent report from the Aspen Institute (2015b) noted that institutions in Canada have made the most progress in defining, assessing, and implementing programs for physical literacy. Tremblay (2012) described many Canadian initiatives. More recently, a consortium of Canadian institutions held a conference that adopted a consensus definition. Specifically, the organization adopted the definition of the IPLA: “*Physical literacy is the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life (emphasis added)*” (Canadian Sport for Life, 2015, p. 1).

The Canadian multi-institutional model, as adopted by many different Canadian organizations (Canadian Sport for Life, Physical and Health Education Canada, ParticipACTION, Healthy Active Living and Obesity Research Group, Canada Parks and Recreation Association, Ontario Society of Physical Activity Promoters in Public Health), clarifies which characteristics define physical literacy for the participating institutions. The definition focuses on lifetime physical activity promotion, a behavior rather than a state of being common to most literacy definitions. The definition also includes states of being as central characteristics (e.g., physical competence, knowledge, and understanding) as well as some characteristics that could be deemed health behavior determinants (e.g., motivation, confidence). It is noteworthy that some of the characteristics included in institutional definitions prior to the consensus conference are not included in the consensus definition, and some of the characteristics of the consensus definition were not included in previous institutional definitions. These changes indicate a willingness of institutions to work together to form consensus. However, institutions also embrace characteristics of physical literacy not included in their own definitions.

A major advantage of the multi-institutional consensus model is that it provides one definition that can be used by multiple organizations—in this case, all participating Canadian organizations. Because the definition is an existing one, from an established

organization (IPLA), other organizations can choose to adopt it as well.

The multi-institutional model and definition do not dictate that all institutions devote their efforts exclusively to building physical literacy as defined in the consensus definition. However, the model and definition do suggest that all institutions have a central commitment to developing physical literacy as defined. Each organization, no doubt, will emphasize different characteristics of physical literacy consistent with institutional purpose, philosophy, and expertise (see Figure 1).

One of the arguments in favor of the use of the term physical literacy is that it can provide a blueprint for program development and assessments. In addition to its educative role, Lundvall (2015) identified two other themes in the physical literacy literature: assessment and sports development. The Canadian organizations, primarily physical education and sport groups, adopting the consensus definition of physical literacy reflect the three themes. The Aspen Institute summarized the status of physical literacy in Canada as follows:

Canada's LTAD [Long Term Athletic Development] plan provides a framework for each Canadian National Sport Organization (NSO) to implement physical literacy through the creation of physical activity programs for individuals across the lifespan. In Canada, physical literacy is considered to be the foundation for both elite sport and a healthy nation. It is Canada's goal that every child be physically literate by age 12. Each of the NSO's LTAD sport-specific models provides a plan for the development of high-performance athletes as well as individuals who wish to participate for recreation and for the health benefits. Each NSO provides a designated Sport Canada program officer with updates and copies of LTAD products to allow Sport Canada to assess the NSO's progress on issues that include advanced physical literacy. An assessment of progress is tied to funding. Canada also recognizes the importance of physical education in schools to enhance and develop physical literacy for Canadian children and youth (physical education is required in most provinces until Grade 9—age 14. (Aspen Institute, 2015b, p. 5)

The Healthy Active Living and Obesity Research Group (n.d.), with government and private support, has been a leader in physical literacy assessment and has produced an administration manual for the CAPL (Healthy Active Living and Obesity Research Group, 2014). While Canadian groups have reached consensus for a multi-institutional definition of physical literacy, inspection of documents from the various organizations suggests differences in institutional approaches.

The SHAPE America single-institution model

In the United States, the physical literacy movement has been slower in gaining momentum than in Great Britain,

Canada, and other countries (Aspen Institute, 2015a; Roetert & MacDonald, 2015). Roetert and Jefferies (2014) indicated that the “debate on physical literacy has progressed significantly in the past five to 10 years” (p. 39) and that SHAPE America has been discussing it in earnest since 2011. In its latest national K–12 content standards document, SHAPE America defined the physically literate person as one who “*has the knowledge, skills and confidence to enjoy a lifetime of healthful physical activity* (emphasis added)” (2014, p. 11), a definition adapted from Mandigo, Francis, Lodewyk, and Lopez (2009). The term “physically educated person” is replaced with the term “physically literate person.” Specifically, the physically literate person is one who “pursues a lifetime of healthful physical activity” and meets five standards:

- (1) has learned the skills necessary to participate in a variety of physical activities, (2) knows the implications and the benefits of involvement in various types of physical activities, (3) participates regularly in physical activity, (4) is physically fit, and (5) values physical activity and its contributions to a healthful lifestyle. (SHAPE America, 2014, p. 11)

Like the Canadian consensus definition, the single-institution definition adopted by SHAPE America features the promotion of lifelong physical activity. Similar to the Canadian definition, skill and knowledge are states of being included in the base definition. Confidence—a determinant, but not motivation—is included in the base definition. The standards are independent of, but related to, physical education and health literacy. Interestingly, responsible personal and social behaviors are identified in the standards as outcomes but are not included in the base definition. Clearly there is a level of agreement between the Canadian consensus definition and the SHAPE America single-institution definition.

While some have questioned SHAPE America's change in terminology (Lounsbery & McKenzie, 2015), Roetert and MacDonald (2015) have defended the change and noted that the decision by SHAPE America to use physical literacy as the central purpose of physical education “was made because physical literacy encompasses all the aspects of a physically educated person, with the additional benefits of providing parallel language with other school subjects, a common purpose and strong rationale for physical education” (Roetert & MacDonald, 2015, p. 110). Roetert and MacDonald suggested that, “Taken together, the goal of physical literacy, the five national standards, and the grade-level outcomes are intended to operationalize the concept of physical literacy and to provide a framework for teachers to use in developing curricula and lesson plans” (p. 110) and to

allow “for an integration of a sound philosophical position with current scholarship from the sub-disciplines in our field and best practices in teaching” (p. 112). In addition to the physical literacy characteristics listed here, Roetert and MacDonald and Roetert and Jefferies (2014) go to great lengths to show how important other constructs not in the SHAPE America definition of physical literacy are important to SHAPE America (e.g., literacy as a lifelong process, development of the whole person, importance of motivation, importance of a mastery-oriented climate). How these constructs are to be addressed, given that they are not part of the definition, is not described.

To date, no specific assessments of physical literacy have been developed by SHAPE America, such as the CAPL in Canada. However, SHAPE America does provide a list of specific competencies and outcomes of physical literacy that provide a basis for assessment (SHAPE America, 2014) and does endorse the FITNESSGRAM® (Plowman & Meredith, 2013; Plowman et al., 2006), an evidence-based health-related fitness assessment program, as well as other assessment programs.

Aspen Institute promotional model

Unlike the two previously discussed models, the Aspen Institute model is promotional in nature. It is not one of a specific institution (e.g., SHAPE America) or a group of institutions (e.g., Canadian consensus). Rather, the model is based on the desire of one institution to promote physical literacy. The Washington, DC-based Aspen Institute, an educational and policies study organization, produced a report entitled *Physical Literacy in the United States* (2015b) as part of its Project Play and its Sports and Society program with primary support from the Robert Wood Johnson Foundation. Representatives of a variety of institutions participated in the development of the content for the report and provided “a model, a strategic plan, and a call to action” (Aspen Institute, 2015b, p. 2). The report targets “populations of greatest needs” and identifies a variety of institutions that can help promote physical literacy including community recreation, fitness, and national sport organizations; education, health care, and medical institutions; public health agencies and foundations; and businesses, industries, parents/guardians, policymakers, and civic leaders. This call to action is not dissimilar from previous ones such as the National Physical Activity Plan (www.physicalactivityplan.org) led by the National Coalition for Promoting Physical Activity (n.d.).

Unlike the two previously discussed models that commit institutions to continued efforts to promote physical literacy, the Aspen Institute model appears to be

a one-time effort to promote physical literacy. The report defines physical literacy as “*the ability, confidence, and desire to be physically active for life* (emphasis added)” (Aspen Institute, 2015b, p. 9). While the report’s definition is similar to others discussed in this article, there are some differences. First, like the others, it has lifelong physical activity as an overarching goal. Second, it includes ability, not specific physical competencies, in its base definition. In explaining ability, however, the report does indicate that ability refers to “competency in basic movement skills and overall fitness that allows individuals to engage in a variety of games and activities” (Aspen Institute, 2015b, p. 9). Third, the definition emphasizes confidence, also primary to the physical literacy definitions in the two previously discussed models. Finally, desire is included as a base characteristic. In the report, desire is described as “intrinsic enthusiasm,” a characteristic very similar to “motivation” as included in the IPLA definition. Knowing and understanding, features of the Canadian and SHAPE America models, are not included in the Aspen Institute definition. Although there is some agreement in nomenclature, the differences in terminology may be confusing to the general public, the target of this promotional effort.

The Aspen Institute (2015b) report includes a section on assessment but does not provide its own assessments. Rather, it refers the reader to SHAPE America’s standards and grade-level outcomes and to formal assessments such as Canada’s Physical Literacy Assessment for Youth (PLAY; Canadian Sport for Life, n.d.-b).

Clarifying physical literacy

Physical literacy and physical education

The origins of the recent physical literacy movement came from physical educators and physical education institutions. As noted earlier, the physical literacy movement has now become much more expansive. Nevertheless, the lines of demarcation that distinguish being physically literate from being physically educated are blurred. Physical literacy is used as an outcome of physical education (SHAPE America, 2014), a justification for physical education (Tremblay & Lloyd, 2010), a term for gaining academic credibility for physical education, and an apparent synonym for physical education (or a physically educated person; Roetert & Jefferies, 2014; SHAPE America, 2014). An argument can be made for physical literacy as the primary goal of physical education, but it should be noted that physical literacy (depending on how it is operationally defined) can be developed in many different ways (e.g., sport,

recreation, family) and is not exclusive to physical education. Castelli, Barcelona, and Bryant (2015) noted that even within schools, a comprehensive approach—more than physical education alone—is necessary.

Physical literacy and other related literacies

Just as physical literacy has emerged as a subdomain of literacy, so has health literacy. Health literacy is described by the Institute of Medicine (IOM) as “the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (IOM, 2004, p. 4). Many of the stated characteristics of physical literacy are associated with health benefits and/or knowing and understanding principles and concepts related to the characteristics. Australia has adopted a construct that combines health literacy with physical activity promotion often associated with physical literacy (Lynch, 2015). Typically, however, physical and health literacy are described as separate but related concepts.

Other types of literacy that relate to physical activity have emerged in addition to physical literacy. Examples include games literacy (Mandigo & Holt, 2004), movement literacy (Kentel & Dobson, 2007), sports literacy (Pill, 2008), and aesthetic literacy (Lussier, 2010). If one of the proposed benefits of the term physical literacy is to make the public more aware, the relationship between physical literacy and “other” literacies must be clarified. As noted earlier, flooding the public with many different but related terms would seem to be confusing to the general public and to professionals.

Is there agreement about definitions of physical literacy?

Much progress has been made in recent years regarding institutional definitions of physical literacy. In Canada, there is a new consensus among organizations. The Canadian definition is the same as that of the IPLA, suggesting some international agreement. The definitions of SHAPE America and the Aspen Institute are different but have commonalities with the IPLA definition. The overarching focus on lifetime physical activity is common to all. While there does seem to be agreement concerning the importance of the behavior of physical activity, there are questions about other characteristics of physical literacy in the institutional definitions.

Lounsbery and McKenzie (2015) have questioned the use of the term physical literacy. In addition, they have concerns about the specific characteristics used to define the term. They expressed a specific concern about the “shift away from doing to knowing” (p. 141) and the

de-emphasis of the physical. The Aspen Institute report highlighted the physical as well, emphasizing motor skill development, as did the Canadian PLAY assessment (Canadian Sport for Life, n.d.-b, 2015). Silverman and Mercier (2015) also emphasized the primary importance of motor skill development in physical literacy, including teacher training to promote skill learning. Ennis (2015), on the other hand, argued that “knowledge is at the heart of physical literacy and provides the foundation for knowing what to do and how and when to perform” (p. 119). Chen (2015) argued that “one determining characteristic of a physically literate person is a strong motivation for physical activity” (p. 130). M. Whitehead (2001), in her early writings, emphasized a holistic approach. In question is whether critics of one characteristic or another will argue to support a variety of characteristics or whether they will exclusively champion their own while rejecting the others, thereby not achieving consensus and possibly preventing success of efforts to promote physical literacy to the public.

Programs and program objectives

Will individuals and organizations support the institutional models?

As noted in this article, institutions have made “top-down” decisions related to physical literacy and its definition. Not all individual members of an institution may agree with the definitions (see previous section) developed by the institution. Cooperating institutions within a multi-institutional model may also have differences. Although both the single-institution and multi-institutional models described in this article endorse physical activity as an overarching goal, different institutions have different policies and philosophies resulting in different goals for each. Some institutions focus primarily on school-based education, while others focus on out-of-school programs. Nonschool organizations (and some school-based programs) have a sports emphasis, with some emphasizing a single sport. These organizations and school athletic programs often focus on high-level performance, sometimes resulting in programs and practices that do not emphasize engagement in physical activity for life. For example, some of the training techniques used in these programs may detract from the participants’ desire to be active throughout life (e.g., using exercise as punishment, risking injury that limits future activity). It is one thing to adopt a goal of promoting lifelong physical activity. It is another to do it in an effective manner. If commitment to physical activity is the overarching goal, institutions will have to

carefully plan programs to meet that desired goal and limit practices that detract from it.

How will different institutions deal with multiple goals?

As illustrated in Figure 1, institutional program goals and objectives are based on institutional policies and philosophies. The institutions identified in this article have committed to specific definitions. Based on the cited literature (see Table 1), many more characteristics of physical literacy are claimed than are included in the stated definitions. Specific questions include:

- Will institutions focus only on characteristics of physical literacy identified in their definitions?
- Are certain characteristics of physical literacy from the definition more important than others for a given institution?
- Will institutions provide for other characteristics of physical literacy as concomitant goals (see Table 1)?

Effective institutional and/or multi-institutional models will be necessary to provide direction for practice, research, and especially program assessment. One example is the SHAPE America fitness education framework that identifies domains and benchmarks and provides a “priority index” to identify content that “deserves a certain level of importance” (National Association for Sport and Physical Education, 2012, p. 2). Effective models will be necessary to clarify institutional purpose and to avoid the tendency to try to do too much (Corbin, 2004).

Will any of the new models of physical literacy result in the development of programs different from those already in existence?

How will physical literacy help? A stated benefit of physical literacy is that it will drive the development of future programs. Canadian institutions have used the term physical literacy for some time, so some of their programs are designed specifically to build physical literacy. On the other hand, the Canadian consensus definition was not adopted until June of 2015, well after many institutional programs were created.

In the United States, physical education programs that focus on physical literacy characteristics were created prior to using the term physical literacy. The SHAPE America model, for example, is based on program standards that identify specific outcomes that are consistent with physical literacy characteristics. In addition, SHAPE America’s framework for fitness

education identifies domains and benchmarks that parallel its standards and outcomes for physical education. The framework identifies fitness education program goals that focus on characteristics of physical literacy such as physical fitness, knowledge and understanding, fitness concepts, fitness testing skills, and self-management skills (including self-confidence and intrinsic motivation). As Ennis (2015) has noted, fitness education programs have been operational for years (see the next paragraph). The sport education approach to conducting programs was also developed prior to the recent physical literacy movement and focuses on many physical literacy characteristics (see Hastie & Wallhead, 2015).

The Aspen Institute (2015b) report calls for collective efforts to promote physical activity around the physical literacy concept. It should also be noted that many school-based efforts to promote physical activity were developed long before the advent of the physical literacy movement. Some examples include the Coordinated Approach to Child Health (n.d.; Luepker et al., 1996), Fitness for Life (Dale & Corbin, 2000; Dale, Corbin, & Cuddihy, 1998; Fitness for Life, n.d.), Physical Best (SHAPE America, n.d.), and SPARK (McKenzie, Sallis, & Rosengard, 2009; SPARK, n.d.). Castelli et al. (2015) made the case for a comprehensive school physical activity program approach to physical literacy that includes implementing comprehensive programs and changing the total school environment. Examples of other longstanding physical activity promotion efforts in the United States include the National Physical Activity Plan (www.physicalactivityplan.org), the National Coalition for Promoting Physical Activity (n.d.), Exercise Is Medicine (www.exerciseismedicine.org; Berryman, 2010), Active Living Research (n.d.), Let’s Move (n.d.), and the Presidential Youth Fitness Program (n.d.). In Canada, examples include ParticipACTION (www.participaction.com) and Canadian Sport for Life (n.d.-a).

It has been suggested that physical literacy is, or can become, a “program driver.” For this prediction to come true, institutions will have to develop specific outcomes/benchmarks *based on* physical literacy characteristics and build programs specific to these outcomes. Research will be necessary to determine if physical literacy actually is the result of these programs and if programs developed around the concept of physical literacy are more effective than existing programs.

Assessment issues

Lundvall (2015) identified assessment as one of three primary themes related to physical literacy in the published literature. As noted in Figure 1, evaluation is

essential in determining if programs, especially institutional programs, result in successful achievement of objectives and goals. When considering evaluation (assessment) of physical literacy, the following issues are worthy of consideration.

Specific or general

During the 1930s and 1940s, the term “general motor ability” emerged (see Rosentswieg, 1980). The term was popular during an era when general tests of intelligence (cognitive ability) were popular. During this time, physical educators envisioned “general motor ability” as a term that would gain credibility for physical prowess (equal to that of intellectual intelligence). The advent of sophisticated statistical procedures (e.g., factor analysis) helped researchers (see Fleishman, 1964) show that psychomotor characteristics (and intelligence) are specific rather than general. For this reason, the concept of “general motor ability,” and tests designed to measure it, fell out of favor (Rosentswieg, 1980). The multiple characteristics associated with physical literacy make it clear that it is multidimensional. In planning future research and practice, it will be important to identify and define “specific” characteristics of physical literacy and to develop appropriate assessment procedures for each (as opposed to attempting to develop a “general” test).

Enduring or transient

Levels of physical activity can be high at one point and almost not existent at another point, depending on a variety of circumstances (Blair & Powell, 2014). Skills, depending on type, once learned can be relatively enduring (Keogh & DeOreo, 1980). Similarly, knowledge can be relatively enduring, but new information requires constant updating. Fitness characteristics, depending on activity levels and other factors, can be quite transient or more enduring (Corbin & Pangrazi, 1992).

Confidence and motivation can be especially transient. Confidence (including self-efficacy) has “trait-like and state-like” components that vary considerably from situation to situation (Feltz & Oncu, 2014; Feltz, Short, & Sullivan, 2008). Motivation, mediated by confidence and other factors, can also be quite transient over time (Duda, 2005; Gilson & Feltz, 2012). The enduring versus transient nature of characteristics is an important factor to consider when developing assessments of physical literacy.

Physical literacy standards

For physical fitness, often mentioned as a characteristic of physical literacy, criterion-referenced health standards are

most commonly used. Fitnessgram, the approved test battery for SHAPE America, is one such example (Meredith & Welk, 2010; Plowman & Meredith, 2013). When assessing physical literacy, are criterion-referenced standards the preferred method? Or should normative standards or other types of standards be used? Do the types of standards vary from characteristic to characteristic?

Making assessments authentic and easy to administer

Siedentop, Hastie, and van der Mars (2011) have long argued for assessments that are authentic—that measure the ability to perform an activity or complete a task successfully in a real-life context. The Aspen Institute (2015b) report recommends the development of physical literacy assessments that can be used by parents as well as professionals and assessment tools for assessing skills taught in sports and other activities. Physical literacy assessments that are authentic and easy to use, by many users, are worthy of consideration.

Type of assessment

Corbin, Lambdin, Mahar, Roberts, and Pangrazi (2013) described four different types of fitness and activity assessments. Self-testing refers to self-assessment for determining personal needs and for self-monitoring and self-planning. Individualized testing provides personal information “much as a personal trainer would do” (Corbin et al., 2013, p. 2-7). Personal-best testing is done to determine how well a person can perform as is frequently done in athletic and sports programs or in testing for military service. Institutional testing, often involving large groups (mass testing), is commonly used by institutions in program development, by researchers as dependent variables, and by government institutions for national surveillance. Any of these four types of testing can be used in assessing the characteristics of physical literacy. Determining which is most efficient and effective in a variety of situations is a worthy pursuit.

Snapshot or movie

As Paffenbarger (1988) has noted, assessments can be a snapshot (picture of a characteristic at one particular time) or a movie (multiple pictures over time). For programs that purport to build physical literacy, snapshots will be used most frequently, but they may not be the most effective. Physical education teachers, for example, will typically use one or more snapshots during a school year. The snapshots can be collected (over time) to produce a movie of physical literacy. However, snapshots

of physical literacy may not be stable over time. Programs that purport to build physical literacy (see Figure 1) will also have to consider whether a single snapshot is an effective measure of literacy or if a movie is necessary.

Literacy: Lifelong application or preparation for lifelong application?

As noted earlier, “the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions” (IOM, 2004, p. 4) is the focus of the definition of health literacy. This definition suggests the need to prepare people for lifelong application but does not specifically state as a goal the actual application of health literacy characteristics throughout life. Is a physical literacy-focused program effective if it enables people to obtain, process, and understand so that they can make “appropriate decisions” throughout life, or must people satisfactorily exhibit the core physical literacy characteristics throughout life? Although lifelong application is a worthy goal, what it means and how it is to be assessed over time will need careful investigation. Movies rather than snapshots will be required.

Addressing assessment issues

A variety of formal assessment criteria and tools are currently available for assessing some, or all, characteristics included in institutional definitions of physical literacy. In the United States, SHAPE America has grade-level outcomes for each of the standards associated with its definition of physical literacy. In addition, it has adopted the Fitnessgram, an evidence-based program of fitness assessment—a program that is jointly endorsed by multiple organizations. It has also developed a “cognitive and motor skill assessment package to measure student progress toward achieving national standards for physical education” (SHAPE America, 2015a, 2015b).

To this point, physical literacy has not “provided a blueprint” for the assessment of SHAPE America content standards. Both the SHAPE America standards and assessments (see previous paragraph) were developed for physical education, prior to changing the focus from “a physically educated person” to a “physically literate person.”

In Canada, a number of institutions have developed a variety of assessments. Some tools were developed initially for sports or physical education programs, but they are now applied to physical literacy. Other tools, unlike those developed in the United States, were developed specifically for the assessment of physical literacy. The Aspen Institute report (2015b) specifically mentions *Developing Physical Literacy: A Guide for Parents of Children Ages 0 to 12* (Canadian Sport for Life, n.d.-a) and PLAY (Canadian

Sport for Life, n.d.-d). PLAY focuses on skill development and uses a scale that ranges from “developing” (i.e., initial, emerging) to “acquired” (i.e., competent, proficient; Canadian Sport for Life, n.d.-d).

Tremblay and Lloyd (2010) argued that measurement is the missing piece related to physical literacy. The CAPL is a program offered to supply the missing piece. The CAPL, supported by multiple governmental and professional organizations, is an assessment program for youth aged 8 to 12 years old (Healthy Active Living and Obesity Research Group, 2013). The product of considerable research and development, according to its website, CAPL is “the first comprehensive protocol that can accurately and reliably assess a broad spectrum of skills and abilities that contribute to and characterize the physical literacy level of the participant” (Healthy Active Living and Obesity Research Group, 2013, p. 6). Like the Fitnessgram in the United States, the CAPL has an assessment manual, training videos, and a data collection and reporting system. Unlike the Fitnessgram, which assesses health-related physical fitness, the CAPL has assessment tools for each of its “core domains” in its model including daily activity behavior, physical competence, knowledge and understanding, and motivation and confidence. In each physical literacy domain, youth are rated using a 4-point classification (i.e., beginning, progressing, achieving, and excelling). The ratings are based on progress on the “journey” toward becoming physically literate.

The CAPL has much to offer in providing assessments for specific characteristics of physical literacy, criterion-referenced standards, and snapshots that allow for creating a movie of physical literacy over a 4-year period. However, there are some concerns. One concern is the overall scoring system designed to provide “aggregate scores to evaluate more global domains that influence a child’s physical literacy” (Healthy Active Living and Obesity Research Group, 2014, p. 17). As noted in a previous section, the use of a general (i.e., aggregate) score by combining ratings on a number of different specific characteristics has the potential to misguide those who are being tested. For example, a person with a high score on one specific assessment (e.g., skill) and a low score on another (e.g., knowledge) could have a similar aggregate rating to a person who had reverse scores (i.e., high knowledge and low skill), therefore making it unclear where the focus on improvement should be placed. Further, CAPL aggregate scores give equal weighting to each of four characteristics (Daily Activity Behavior + Physical Competence + Motivation and Confidence + Knowledge and Understanding = Aggregate Score). This seems to be in contradiction to the fact that physical activity behavior appears to be the

primary characteristic of physical literacy (see Canadian consensus definition in Canadian Sport for Life, 2015).

A second concern is the use of scores that combine similar but independent characteristics. One example is the obstacle course method of rating motor skills. Specifically, the Canadian Agility and Movement Skill Assessment (Longmuir et al., 2015) yields one total score for an obstacle course that requires several specific skills (e.g., jump, slide, catch, throw, skip, hop, kick), unlike the Canadian PLAY, which rates each skill independently. Skill and fitness are combined into a single physical competence score and motivation and confidence are combined into a single score as well. Using this type of scoring makes it difficult to easily interpret the scores.

Finally, the CAPL is designed for use with children ages 8 to 12 years old. The Aspen Institute (2015a) report indicates that “it is Canada’s goal that every child be physically literate by age 12” (p. 5). At issue is whether physical literacy can be achieved by age 12 and whether literacy measured by snapshots at age 12 is indicative of literacy over the life course.

The brief discussion of the measurement of physical literacy in the Aspen Institute report (2015b) focuses on motor skill development. It refers primarily to SHAPE America standards and grade-level outcomes but indicates that the United States must “take steps to develop robust tools to measure whether those competencies have been achieved” (Aspen Institute, 2015b, p. 27). The report also endorses Canada’s assessment programs. The report recommends the development of assessments that can be used by parents as well as professionals and tools for assessing skills taught in sports and other activities. This recommendation emphasizes the need to develop assessments with ecological validity.

Whether developed specifically to assess physical literacy or developed for other reasons and applied to physical literacy, there are many assessments that are supported by research. For example, many health-related fitness test items, including those in batteries such as the Fitnessgram and CAPL, are related to good health (IOM, 2012). Continued research is necessary to study the best assessments and to answer other questions related to the assessment of physical literacy, including:

- Is the cost in time for administering assessments, especially mass institutional assessments, worth the loss in time in program involvement?
- How often must assessments be administered to yield optimal results?
- Does the administration of assessments, especially mass institutional assessments, foster motivation and confidence and promote fitness

and physical activity as definitions of physical literacy imply (see Corbin, 2010; Corbin, Whitehead, & Lovejoy, 1988; J. R. Whitehead, Pemberton, & Corbin, 1990)?

- Do award schemes (e.g., the Presidential Youth Fitness Program, n.d.) associated with institutional assessments foster motivation and confidence and promote fitness and physical activity (see Corbin & Pangrazi, 1992; Corbin et al., 1988; J. R. Whitehead et al., 1990)?

Research

Will any of the new models of physical literacy stimulate new research?

The IPLA definition adopted by the Canadian consensus emphasizes motivation, confidence, and physical competence (e.g., skill and fitness) and was designed to help people take responsibility for being active. The SHAPE America definition also emphasizes knowledge, skills, and confidence but includes fitness and learning to value physical activity in its standards. Considerable research, not associated with physical literacy, has been conducted related to physical activity promotion, both in and out of schools. Theories of behavior change have resulted in research (Biddle, Mutrie, & Gorely, 2015; Dishman & Sallis, 1994; Sallis et al., 1992) that helps us understand the determinants of physically active lifestyles (e.g., motivation, confidence). As proponents of physical literacy point out, there is good science to explain each of the characteristics of physical literacy. Whether physical literacy will provide the “galvanizing theme” for *future* research remains to be seen.

Will multi-institutional models result in interinstitutional cooperation and interdisciplinary/intradisciplinary research?

Schary and Cardinal (2015) wrote eloquently about the need for interdisciplinary research (IDR) and intradisciplinary research (ITR). They noted:

Prominent kinesiologists have proposed IDR as a solution to perceived and/or real fragmentation issues that have developed within the field and across, and even within the various subdisciplines. For such an important topic, however, there is a lack of research surrounding IDR in kinesiology. (p. 173)

All definitions of physical literacy, in both models discussed here, describe physical literacy as multidimensional. The multidimensionality of physical literacy suggests that it could provide a basis for IDR and ITR. Further, the fact that multiple institutions have

banded together in support of a common definition of physical literacy would suggest the potential for multi-institutional IDR and ITR. Schary and Cardinal (2015) provided a good working framework for such research and noted, “By better understanding interdisciplinary concepts and working toward applying them into the discipline, kinesiology will produce better research and better prepare practitioners for the complicated, challenging job of working with people” (p. 182). The potential is there for those advocating for physical literacy.

Summary

Many, particularly those involved in youth sport programming and physical education, believe that the use of the term physical literacy has specific institutional benefits. Among the many claims for physical literacy are that it:

- provides a term that aids in “collective efforts” among a variety of institutions to promote physical activity and combat the consequences of sedentary lifestyles (Aspen Institute, 2015b, p. 2);
- is the “cornerstone of both participation and excellence in physical activity and sport” (Canadian Sport for Life, n.d.-c, para. 1);
- “[p]rovides parallel language with other school subjects, a common purpose and strong rationale for physical education” (Roetert & MacDonald, 2015, p. 110);
- provides a “unifying term to describe the overall outcome of quality physical education, physical activity, sport, and recreation programs” (Roetert & Jefferies, 2014, p. 39);
- allows “for an integration of a sound philosophical position with current scholarship from the sub-disciplines in our field” (Roetert & MacDonald, 2015, p. 112);
- provides a basis for “best practices in teaching” (Roetert & MacDonald, 2015, p. 112);
- provides an alternative term for a physically educated person (SHAPE America, 2014);
- provides a framework for teachers to use in “developing curricula and lesson plans” (Roetert & MacDonald, 2015, p. 110);
- serves as an outcome of physical education (SHAPE America, 2014); and
- contributes to a holism rather than a dualism (M. Whitehead, 2001, 2010)

It is interesting that these hypothesized benefits are not dissimilar to those of the leaders of the new physical education movement at the turn of the 20th century. Williams (1964), for example, noted “not only is the

individual a whole but is also one with his environment, so that the total situation includes the whole person in all aspects and the environment with which he reacts and interacts in all his responses” (p. 8). Ennis (2015) cited various leaders of the new physical education and noted the emphasis on a scientific basis for programs and on an academically oriented curriculum.

To determine if physical literacy will make the public more aware of what we do, we can ask the public. Public sentiments can easily be tested with basic marketing research. For example, a survey in Canada indicated that 17% of people were aware of the term (Decima Research, 2008, cited in Tremblay & Lloyd, 2010). Does the public know what physical literacy is and does the public think that physical literacy is important? To determine if physical literacy promotes academic credibility and equality, we can survey attitudes of school administrators and those in academia. It would be also be good to have data to help us determine if programs promoting physical literacy are effective in changing public perceptions and perceptions of school administrators and academics.

Those interested in promoting physical literacy will have to show that the adoption of the term physical literacy provides a foundation for elite sport, public health, and physical education rather than merely being a term used to improve public perceptions. Because institutions are typically in the driver’s seat, it will be up to them to address issues and questions such as those outlined in this article and to demonstrate clear and well-established “blueprints” that provide for consensus and facilitate development of evidence-based programs and assessments.

An encouraging fact is that many groups are rallying around physical literacy for the reasons described here. There appears to be growing consensus concerning a definition and an ever-increasing interest in cooperation among institutions interested in physical literacy. Opportunities for cooperation in promoting concepts related to physical literacy seem to be ripe. Only time will tell whether physical literacy is a term that will endure or whether it is a passing fad. Addressing issues and answering questions, such as those outlined in this article, will be important in determining the importance of physical literacy in the future.

What does this article add?

Physical literacy is a term that has gained increased popularity in recent years. A variety of individuals and organizations have promoted the use of the term internationally, and a variety of claims have been made for the benefits of using the term. This article provides a unique overview on the topic and asks specific questions

about the benefits and problems associated with the use of the term physical literacy. The historical overview allows the reader to consider physical literacy as one of many terms that have gained popularity in the field and describes divergent views as well as areas of agreement concerning the term physical literacy. In question is the sustainability of the interest in physical literacy. The article was designed to provoke thought among professionals and representatives of institutions concerning physical literacy. Discussions of important issues may help to determine if physical literacy will be a driver of professional practice and research or if it is just another passing fad.

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