TEME, Vol. XLVII, N° 3, July – September 2023, pp. 543–561

Review Article
Received: April 13, 2023
Revised: May 27, 2023
Accepted: May 29, 2023

https://doi.org/10.22190/TEME230413034P
UDC 796.01:37.031

PHYSICAL LITERACY IN EDUCATIONAL SYSTEMS WORLDWIDE: CONCEPT, DEFINITION, AND EVALUATION

Aleksandar Pajkić[1*], Ivana Milanović[2], Snežana Radisavljević-Janić[2]

[1]University of Banja Luka, Faculty of Physical Education and Sport, Banja Luka, Bosnia and Herzegovina
[2]University of Belgrade, Faculty of Sport and Physical Education, Belgrade, Serbia

Abstract

The term 'physical literacy' (PL) is generally understood as an individual's ability to lead a physically active lifestyle. Although various forms of physical activity (physical education, sport, recreation, activities of daily living) have the potential to develop children's PL, many authors believe that the education system plays a crucial role, and physical education in particular has been identified as one of the most suitable environments for its development. The aim of this paper is to provide a comprehensive overview of the concept of PL, with a focus on defining and assessing PL within educational systems worldwide, that is, within physical education classes worldwide. Through a literature review undergone using an inductive approach, the most common and significant studies on PL published in peer-reviewed journals were analysed. Three areas important for a better understanding of PL in the context of physical education were identified and analysed: the definition of PL, various PL models, and existing tools for assessing PL. Regarding these areas, it can be concluded that there is no universally accepted model or instrument for assessing PL because of different cultures and systems, that is, the specifics of a certain region. In order to better understand these areas in the context of physical education, it is suggested that researchers provide a framework that contains clear and concise information, along with specific examples that would enable teachers to effectively work within the school.

Key words: physical education, assessment tools, students, components, teachers.

[*] Corresponding author: Aleksandar Pajkić, University of Banja Luka, Faculty of Physical Education and Sport, University City, 1A Vojvode Petra Bojovića Blvd. Banja Luka, 78 000, Bosnia and Herzegovina, aleksandar.pajkic@ffvs.unibl.org

ПОЈАМ, ДЕФИНИСАЊЕ И ВРЕДНОВАЊЕ ФИЗИЧКЕ ПИСМЕНОСТИ У ОБРАЗОВНИМ СИСТЕМИМА У СВЕТУ

Апстракт

Термин „физичка писменост“ (ФП) се генерално схвата као способност појединца да води физички активан начин живота. Иако различити облици физичке активности (физичко васпитање, спорт, рекреација, активности из свакодневног живота) имају потенцијал да развију ФП деце, према многим ауторима, образовни систем у овом процесу игра кључну улогу, а посебно је предмет физичко васпитање идентификован као једно од најприкладнијих окружења за развој физичке писмености. Циљ овог рада је да пружи свеобухватан преглед концепта ФП, са фокусом на дефинисање и процену ФП у оквиру образовних система у свету, односно у оквиру наставе физичког васпитања. Кроз преглед литературе за који је коришћен индуктивни приступ, анализирани су најчешћи и најзначајнији радови у објављеним рецензираним часописима, са фокусом на ФП. Идентификоване су и анализиране три области важне за боље разумевање ФП у контексту физичког васпитања: дефинисање ФП, различити модели ФП, и постојећи инструменти за процену ФП. Што се тиче ових области, може се закључити да не постоји универзално прихваћен модел или инструмент за процену ФП због различитих култура и система, односно специфичности одређених региона. Да би се боље разумела ова подручја у контексту физичког образовања, предлаже се да истраживачи обезбеде оквир који садржи јасне и сажете информације, заједно са специфичним примерима који би омогућили наставницима да ефикасно раде у школи.

Кључне речи: физичко васпитање, инструменти за процену, ученици, компоненте, наставници.

INTRODUCTION

Early definitions of ‘literacy’ referred only to the ability to read and write. Meanwhile, the term ‘literacy’ has evolved, and it now includes lifelong learning, and the acquisition of knowledge and skills that culminates in deep understanding (Chrisomalis, 2009). Due to the developing and changing definition, a significant number of subject areas have adopted the suffix ‘literacy’, thus recognising computer, technical, digital, nutritional, scientific, musical, health, and physical literacy.

The term ‘physical literacy’ (PL) is generally understood as an individual’s ability to lead a physically active lifestyle (Longmuir & Tremblay, 2016). Although there are different definitions of PL, a significant number of them include the integration of physical, psychosocial, and cognitive processes that contribute to the healthy development of the whole person (Edwards, Bryant, Keegan, Morgan, & Jones, 2017). In this way, PL is presented as a holistic concept composed of interconnected elements that develop over time to enable an individual to participate in physical activity throughout their life. Various sources suggest that physically literate individuals are confident, competent, and motivated with the

knowledge, skills, and attitudes needed to engage in physical activity (Silverman & Mercier, 2015).

The significance of PL has been increasingly recognised in recent years, as it has been associated with improved health outcomes (Fortnum, Furzer, Reid, Jackson, & Elliott, 2018), increased participation in physical activities (Belanger et al., 2018), and healthier body weight status (Comeau et al., 2017). Given the existing problem of physical inactivity in most countries, proponents of the concept believe that PL is the missing link that has the potential to solve this problem (Corbin, 2016). Considering its importance, promoting physical literacy is important throughout life, and some authors believe that the optimal time for its development is during childhood (Mandigo, Francis, Lodewyk, & Lopez, 2009; Whitehead, 2010). For example, in Canada, the goal is for every child to be physically literate by the age of 12 (Balyi, Way, & Higgs, 2013), and in the United States, the goal of physical education has shifted from creating a 'physically educated person' to creating a 'physically literate individual' (SHAPE America, 2013). Accordingly, Whitehead (2013) believes that physical education is the only place where every child is guaranteed to experience purposeful physical activities and, therefore, physical education represents perhaps the only opportunity for every young person to build a lifelong commitment to, and enjoyment of, physical activity. Talbot (2014) states that the outcome of physical education should be a physically literate young person, who has the skills, confidence and understanding to continue participating in physical activities throughout their lifespan. Furthermore, PL is a justification for physical education through which physical education will gain academic credibility (Tremblay & Lloyd, 2010), and will be placed on a more level playing field with other subject areas such as health, math, and science, which have adopted the term literacy (Roetert & MacDonald, 2015).

There are a few studies on the development of PL in younger age groups (Silverman et al., 2015; Allan, Turnnidge & Côté, 2017). Although various forms of physical activity (physical education, sport, recreation, activities of daily living) have the potential to develop children's PL (Whitehead, 2013b), many authors (Whitehead, 2013; Liu & Chen, 2021) believe that the education system plays a crucial role, and physical education, in particular, has been identified as one of the most suitable environments for its development. Therefore, Whitehead (2013b) emphasises the importance of physical education teachers in developing and promoting PL in the school environment. In general, teachers play an important role in planning and implementing educational activities, motivating students, developing their interest in learning, as well as in achieving quality communication and interaction between teachers and students (Vučinić & Antonijević, 2020). However, some studies indicate that there is confusion among physical education teachers about how they under-

stand the concept of PL and how they should implement it in the teaching process (Stoddart & Humbert, 2017), and they generally cannot conceptualise PL adequately (Robinson, Randall & Barrett, 2018). Specifically, teachers generally misunderstand the concept, and the majority of them are unable to define PL (Stoddart & Humbert, 2021). Equating fundamental movement skills with PL is another problem that is perhaps one of the most potentially damaging misunderstandings of the concept (Robinson et al., 2018). Some teachers do not see the difference between PL and physical education (Robinson et al., 2018). The teachers' lack of understanding of the concept is concerning, considering that an increasing number of national physical education curricula aim at developing children's PL. Confusion is certainly caused by the differences in defining and understanding the concept, which often differ from author to author, and the different approaches to assessing PL. In this regard, understanding what PL is, what it consists of, and how it is assessed is crucial for its development and promotion.

The aim of this paper is to provide a comprehensive overview of the concept of PL, with a focus on defining and assessing PL within educational systems worldwide, that is, within physical education classes worldwide. By reviewing the current literature, we will explore the various components of PL and consider different instruments for its assessment. In addition, the importance of PL in promoting the participation in physical activities will be discussed.

METHODS

Through a literature review undergone using an inductive approach, the most common and significant studies on PL published in peer-reviewed journals were analysed. A comprehensive literature search was conducted using the keyword 'physical literacy' in specific scientific databases (PubMed, ScienceDirect, Google Scholar). Inverted commas were inserted around the term 'physical literacy' to ensure searches would find papers in relation to PL. Additionally, using Boolean search operators, the search terms included were: 'definition'; 'construct' or 'concept'; 'components' or 'elements'; and 'assessment'. The focus was on studies published between January 2001 and February 2023, i.e., studies published after Margaret Whitehead introduced the concept of PL. The research was based on original research articles and review papers, and the search included online books and doctoral dissertations. The search mainly focused on mapping the existing literature on the definitions and components of PL, as well as on instruments for assessing PL, which was the criterion for including studies in the analysis. In accordance with the PRISMA procedures, all duplicate papers were removed (Figure 1). After the duplicates were removed, papers were screened

based on title and abstract, and were considered either suitable or unsuitable following the inclusion criteria. A total of 48 studies were identified and assessed for eligibility. The articles were carefully reviewed for analysis and refinement, after which 21 articles were excluded from the study due to the fact that the information presented in the articles either was not relevant to the research questions' aims and objectives or did not relate to school-aged children. In the next phase, a detailed analysis of each study was conducted. On this occasion, the papers were extracted into a Microsoft Excel spreadsheet according to the author's name, year of publication, title, and main content/findings.

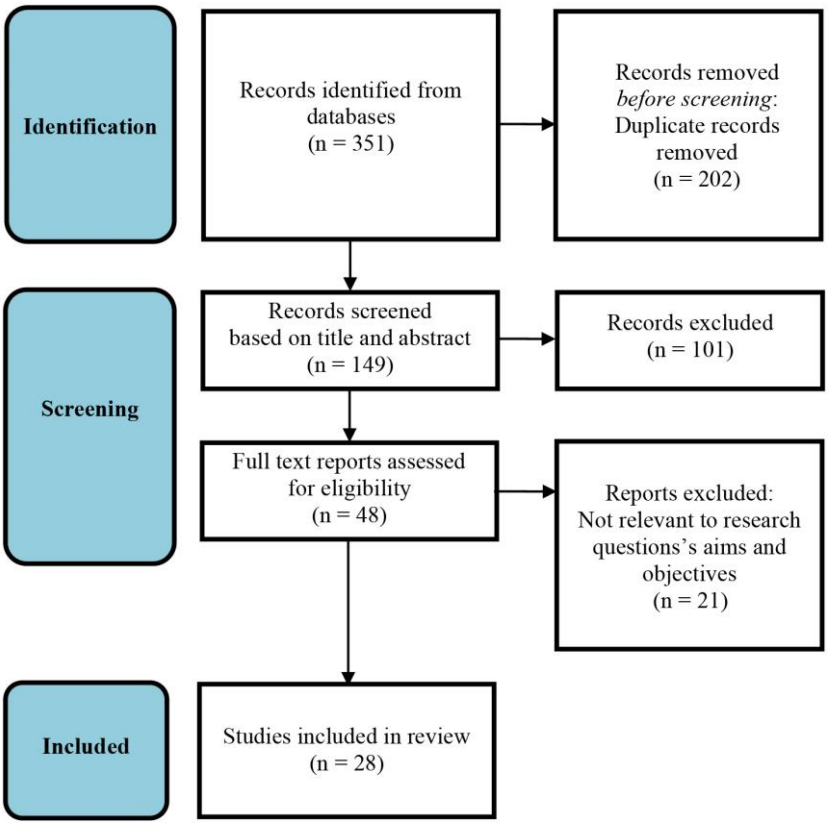

Figure 1. PRISMA flow diagram showing the process of study identification and selection

RESULTS AND DISCUSSION

Through a literature review, various approaches to understanding, conceptualising, and assessing PL were considered. Three areas important for a better understanding of PL in the context of physical education were identified and analysed in detail in the following text. Firstly, there is a need to clearly present the definition of PL, given that there are different interpretations and approaches to defining the concept. In addition, we presented various PL models that clearly indicate the components that are important for an individual to be physically literate. Thirdly, the existing tools for assessing PL, applicable to school-aged children within the framework of physical education, were analysed.

The Definition of Physical Literacy

A number of researchers have provided definitions of PL that refer to lifelong participation in physical activity (Higgs, Balyi, Way, Cardinal, Norris, & Bluechardt, 2008; Mandigo, et al., 2009; Leidl, 2013; Macdonald & Enright, 2013), but Whitehead (2013b) emphasised the importance of distinguishing PL from physical activity and offered a definition that states: "Physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for maintaining purposeful physical activities throughout the lifecourse" (Whitehead, 2013b, p. 28). This definition was the result of a ten-year systematic analysis of the concept and several previously proposed definitions. It is one of the most commonly used and widely accepted definitions, but there are a number of other definitions and interpretations of the concept of PL tailored to the specific needs of different programmes, cultures, and countries.

From this definition, it can be concluded that PL is a multidimensional construct that consists of areas that are traditionally studied separately. Instead, PL is presented as a holistic concept that integrates certain components, and is focused on the development of the whole person, where the mind and body are one (Whitehead, 2010). It is necessary to note that PL encompasses not only physical competence and fitness, but also the motivation, knowledge, understanding, and attitudes necessary to engage in physical activity throughout life.

The problem is that teachers are aware of the physical aspect of PL, but they are less aware of its affective or cognitive components (Robinson et al., 2018). This is not surprising, given that many available documents and scientific papers largely focus on the physical aspect of PL and the acquisition of skills in different environments (Robinson et al., 2018). One of the motives that influenced Whitehead to develop the concept of PL was the fact that physical education classes put too much emphasis on physical performance, sports, and elitism (Whitehead, 2010).

This aligns with the current understanding of teachers who equate fundamental motor skills with PL, whereas these skills should only be seen as one part of PL (Robinson et al., 2018).

A few researchers have investigated the relationship between PL and physical education (Lundvall, 2015, Corbin, 2016). Some of these studies have shown that teachers are unable to adequately explain the relationship between PL and physical education (Stoddart et al., 2017; Stoddart et al., 2021). Whitehead resolved this confusion that arose among researchers and teachers regarding the relationship between PL and physical education by stating that "PL is not an alternative to physical education, nor is it competition for physical education" (Whitehead, 2013b, p. 32). In addition, she emphasised that physical education is a subject in the school curriculum, and that PL should be a goal of physical education, through which the intrinsic value of physical activity would be revealed (Whitehead, 2013b). Viewing PL as an individual journey, Whitehead notes that PL is not only relevant to education, but can be developed in various environments, and all those who are in a position to influence that process have a role to play. Also, she notes that physical education teachers have a crucial role in creating physically literate individuals, as they are the only qualified experts who have contact with every young person (Whitehead, 2013b).

It is necessary to emphasise how teachers should act within the physical education classes to contribute to the development of PL. Almond (2013) identifies two dimensions of understanding PL in the context of physical education. One relates to what is expected for students to understand as they progress on their journey of PL, while the other is the understanding required by the teacher regarding how they can develop PL in students. Regarding the second dimension, it should be noted that teachers do not teach PL, but rather plan, direct, and support student involvement in experiences that are meaningful to them and that develop self-esteem and confidence (Almond, 2013). They have a key role in promoting PL in students. To provide students with experiences that enable them to appreciate the impact of physical activity on health and well-being, teachers should highlight the effects of exercise on the body and discuss the various health benefits of exercise. Topics such as eating habits and the importance of sleep should also be addressed as needed. Since PL is not a programme, the teacher does not teach PL. The teacher can choose appropriate content and pedagogical methods that provide opportunities for PL to develop in students. Many elements of PL, such as confidence or motivation, cannot be learned directly, but are developed and nurtured.

Confusion around the understanding of PL was also contributed to by different approaches to its definition. With the increase in popularity and interest in PL in different countries, disciplines, and organisations, the number of definitions and interpretations of this concept has also increased (Shearer et al., 2018). Although a globally accepted definition is desirable, Whitehead (2010) noted that different approaches to the concept of PL can be expected. Some countries and organisations have had the need to adapt the existing definitions to reflect their own culture and systems. Given the discussion about the influence of culture and the specificity of a certain area when defining PL, Whitehead emphasised that if alternative definitions are used, they must identify the main long-term goal of PL, which is engagement in physical activity throughout life (Spengler, 2015).

The definition of PL also depends on how someone understands and approaches the concept of PL, so one can discuss a holistic approach, as opposed to an approach focused on sports performance (Allan et al., 2017). The problem also lies in the fact that some definitions only refer to the development of fundamental motor skills or certain components of PL. Certain definitions (Higgs et al., 2008; Delaney, Donnelly, News, & Haughey, 2008; Balyi et al., 2013) emphasise the importance of fundamental motor skills in the development of PL, which is certainly not in line with Whitehead's original concept. As a result, some believe that this diversity in definitions has created a level of inconsistency and a confusing situation, and some have moved away from the central principles of PL (Tremblay et al., 2010; Jurbala, 2015). While physical competencies are one domain of PL, the concept itself encompasses much more than just the development of motor skills (Cairney, Dudley, Kwan, Bulten, & Kriellaars, 2019). It is necessary to emphasise that each domain is equally important, and that, without the development of all domains, it is unlikely that PL and lifelong engagement in physical activity will be achieved (Whitehead, 2013b).

The Components of Physical Literacy

In order to better understand PL, certain models have been constructed that allow for a better visualisation and understanding of the theoretical background of PL. Table 1 presents the existing models of PL, which are intended for use in the educational system. The components that make up these models can be observed – that is, the characteristics that are needed for an individual to be physically literate can be observed.

Table 1. Models and components of physical literacy

No.	Title/reference	Domains	Components
1.	Whitehead (2010)	Physical	Physical competence
		Affective	Motivation; confidence
		Cognitive	Knowledge and understanding
2.	International Physical Literacy Association (2015)	Physical	Physical competence
		Affective	Motivation; confidence
		Cognitive	Knowledge and understanding
		Behavioural	Engagement in physical activities for life
3.	Australian Physical Literacy Framework (Sport Australia, 2019)	Physical	Physical fitness and movement skills
		Psychological	Engagement & enjoyment, confidence; motivation; self-perception; self-regulation (emotions); self-regulation (physical)
		Social	Relationships; collaboration; ethics; society & culture
		Cognitive	Content knowledge; safety & risk; rules; reasoning; strategy & planning; tactics; perceptual awareness
4.	Chinese Assessment and Evaluation of Physical Literacy (Chen et al., 2020)	The intention of physical activity	The intention of physical education lesson; the intention of participation in physical activity out of school time; the intention of active play
		Knowledge of physical activity	Kinesiology (basic); nutrition for physical activity and exercise; health promotion and physical activity; safety/injury/damage of sport and exercise
		Motor/sport skill	Fundamental motor skill (for primary school-aged children); specific sport skill (for middle and high school-aged children)
		The behavior of physical activity	Physical activity and exercise; experience of sports games/events
		Physical fitness	Physical function; strength; power; cardiorespiratory fitness; flexibility
5.	Farren et al. (2021)	Physical	Physical fitness and motor skill competence
		Affective	Self-efficacy; motivation; self-esteem
		Cognitive	Knowledge and understanding

For the purposes of comparison, the fundamental model of Whitehead (2010) is also presented, which consists of three domains (affective, physical, and cognitive), or four subdomains (motivation, confidence, physical competence, knowledge and understanding). Whitehead (2010) described that the affective domain refers to aspects of motivation, confidence, self-esteem, and positive self-perception, while the physical do-

main is focused on the development of physical competencies, including the development and refinement of motor skills within different environments (e.g., land, water, indoor and outdoor spaces). The cognitive domain relates to the knowledge and understanding of fitness and health, including exercise, nutrition, and sleep, as well as the understanding of movement, and the application of creativity and imagination in different environments (Whitehead, 2010). Although most models contain some elements from the affective, physical, and cognitive domains, some of them have certain specificities. In the Australian framework of PL (Sport Australia, 2019), the specific is the social domain, which contains elements that are important for a person's interaction with others in relation to movement. Based on Table 1, it can be concluded that this is one of the most complex models when it comes to the number of elements that make up each domain. In recent years, the concept of PL has been receiving increasing attention in China, where a five-dimensional model with certain specificities has been presented (Chen, Tang, Chen, & Liu, 2020). This model presents characteristics that Chinese authors consider important for children to be physically literate in China (Chen et al., 2020). In Canada, a four-dimensional PL model has been developed based on the definition of the International Physical Literacy Association (Tremblay et al., 2018). The basic difference compared to Whitehead's model is the behavioural domain, which refers to engagement in physical activities throughout life. Considering that physical activity should be viewed as the ultimate goal of PL, the question arises as to whether this domain should be an integral part of the physical literacy process, as presented in this model. Some authors have analysed the existing literature in detail in order to identify the most common components of PL (Corbin, 2016; Edwards et al., 2017), which served as the foundation for the development of certain models. Thus, in the United States, Farren, Yeatts, and Price (2021) proposed a PL model based on the research of Whitehead (2010), and Edwards et al. (2017). In terms of domains, the concept is in line with Whitehead's, while certain differences are observed in the identified subdomains, to which elements of self-efficacy, self-esteem, and physical fitness have been added.

Based on the presented models and components of PL, it is important for teachers to understand that physical education is not just about being active, but that it is a time for skill development, and the development of important elements such as confidence and motivation to participate in physical activity. In order to achieve this, it is desirable for researchers to provide physical education teachers with a framework for implementing PL education in students, which would be partly influenced by the educational and cultural context. In other words, in addition to the existing scientific literature which analyses PL, certain actions or projects that would offer a general framework, giving guidelines to teachers in

their work, are desirable. This framework should contain clear and concise information, along with specific examples that would enable teachers to work effectively throughout the school year, with the aim of fostering PL in children. Of course, at the level of individual education systems, the framework could be adapted according to the specificities of the educational system and the cultural characteristics of the area.

The Assessment Tools for Physical Literacy

As for the assessment tools for PL, some authors (Robinson & Randall, 2017) have suggested that PL may not need to be measured at all because, in that way, we actually move away from the inherent value of the concept. Other authors (Liu et al., 2021) believe that the concept is more valuable for scientific research if it is measurable.

However, given the essential role of assessment in operationalizing PL, several assessment tools have been developed under different conceptual models of PL (Corbin, 2016). Two approaches have emerged regarding how someone understands the concept of PL and, thus, approaches its assessment.

These approaches have been characterised as idealistic and pragmatic (Edwards, Bryant, Keegan, Morgan, Cooper, & Jones, 2018). Edwards and colleagues (2018) further state that the idealistic approach argues that PL is a holistic concept and that any separate measurement of its domains would contradict the holistic and philosophical foundation of the concept. Accordingly, idealists are more likely to explore the concept through qualitative research methods, such as interviews and observations. On the other hand, some researchers have adopted a more pragmatic approach to assess the level of PL. Pragmatists argue that practical approaches to the concept of PL are needed. As a result, they may choose a range of research methods, including both qualitative and quantitative methods.

Table 2 presents the instruments for assessing PL that can be applied in physical education. There are similarities and differences among these instruments in terms of the age group for which they are intended, the domains/components they assess, the methods they use, and the time required to conduct the assessment. Most of them use a pragmatic approach to assess the level of PL. In this group, the most well-known instruments are those applied in Canada. *The Canadian Assessment of Physical Literacy* (CAPL) is an instrument constructed by the Canadian organization *Healthy Active Living and Obesity Research Institute* to assess PL in children ages 8 through 12, both in the educational system and in sports organisations. Then, there is the *Physical Literacy Assessment for Youth* (PLAY), which was constructed by Kriellaars (CS4L, 2013) for the organisation *Sport for Life Society*, which operates within national sports organisations and emphasises the importance of incorporating PL components into the long-term development of athletes (Green, Roberts, Sheehan, & Keegan, 2018).

Table 2. Assessment tools for physical literacy

Assessment tool name	Age	Assessment duration (in relation to one class and hour)	Categories they assess	Methods for assessment
CAPL	8-12	4 school hours	Physical competence	PACER Shuttle Run; Plank; CAMSA test
			Motivation, confidence	Questionnaire - Children's Self-Perceptions of Adequacy in and Predilection for Physical Activity (Hay, 1992)
			Knowledge and understanding	Questionnaire (5 items)
			Daily behavior	Average daily step count (pedometer); Questionnaire (1 item)
PLAY (PLAYfun)	7+	4 school hours	Physical competence	18 fundamental skills/tasks
			Comprehension	A four-point scale for monitoring the child's knowledge of each task
			Confidence	A three-point scale for assessing confidence when performing each task
Passport for Life	8-14	3 school hours	Fitness Skills	4-station circuit; lateral bound movement; plank
			Movement Skills	Running, throwing, and kicking
			Active Participation	Online questionnaire
			Living Skills (feelings, thinking, Interacting)	Online questionnaire
Farren, et al. (2021)	11-12	3 school hours	Physical fitness	FitnessGram battery test
			Motor skill competence	PE Metrics
			Self-efficacy	PE self-efficacy questionnaire
			Motivation	Intrinsic motivation subscale from "Perceived Locus of Causality scale"
			Self-esteem	"Global Self-esteem Scale" from "Self-perceptions Profile for Children questionnaire"
			Knowledge & understanding	Questionnaire took from the CAPL assessment tool

CAEPL	6-18	/	The intention of physical activity	Originally constructed questionnaire with 20 items
			Knowledge of physical activity	Originally constructed questionnaire
			Motor/sport skill	Test for Gross Motor Development-3
			The behavior of physical activity	Accelerometer or pedometer; IPAQ Questionnaire
			Physical fitness	Handgrip strength; standing long jump; sit-ups for 30 seconds; sit and reach; 50m run; 20m shuttle run
PPLI	11+	8-10 minutes	Knowledge and understanding Sense of self and self-confidence Self-expression and communication with others	An originally constructed questionnaire with 9 items
PPLA	15-18	27 minutes for questionnaires	Physical	FITescola battery of tests; motor skills in accordance with the curriculum
			Psychological	Originally constructed questionnaire (46 items)
			Social	Originally constructed questionnaire (43 items)
			Cognitive	Originally constructed questionnaire (10 items)
PLAQ	8-12	/	Physical competence	Originally constructed questionnaire (9 items)
			Affective domain	Originally constructed questionnaire (13 items)
			Knowledge and understanding	Originally constructed questionnaire (11 items)
			The behavior of physical activity	Originally constructed questionnaire (11 items)
FMS assessment tool- 60 minutesKids Club	0-11	/	Fundamental motor skills	Assessment of the level of adoption of motor skills on a four-level scale

Legend: CAPL - Canadian Assessment of Physical Literacy; PLAY - Physical Literacy Assessment for Youth; CAEPL - Chinese Assessment and Evaluation of Physical Literacy; PPLI - Perceived physical literacy instrument; PPLA - Portuguese Physical Literacy Assessment; PLAQ - Physical Literacy Self-Assessment Questionnaire

Recently, attention has also been drawn to the *Portuguese Physical Literacy Assessment* (PPLA; Mota, Martins, & Onofre, 2021), which is based on the Portuguese curriculum and the *Australian Physical Literacy Framework*, as well as the *Chinese Assessment and evaluation of physical literacy* (CAEPL), which was developed by researchers from the Shanghai University of Sport (Chen et al., 2020). Most of these assessment tools use certain tests or protocols to assess each domain individually, after which the individual scores are added up to obtain an overall score or level of the PL of the individual.

The problems highlighted in relation to these assessment tools are the time required to collect results. For some instruments (CAPL, PLAYfun, Passport for Life), it takes three to four school hours to administer or test one school class. Assuming that physical literacy is assessed only at the beginning and end of the school year, we come up with a number of six to eight hours, which takes away a significant amount of time from the curriculum. Furthermore, some instruments (CAPL, Passport for Life) recommend two assessors, which is difficult to implement in school practice. Additionally, some of them require expensive equipment such as accelerometers or pedometers, which are available only to a few. *Passport for Life* uses tablets in classes through which children's motor skills are assessed in relation to the model, which is a significant investment in less developed countries. Robinson and Randall (2017) critically analysed and compared Canadian instruments, and they concluded that the *Canadian Assessment of Physical Literacy* is the most reliable and valid, while *Passport for Life* has the least evidence of metric characteristics. However, when looking at usability, which refers to the practical applicability of the instrument, the authors consider *Passport for Life* to be the most the most practical. Furthermore, *Passport for Life* was also rated the best in terms of the degree to which the instruments are aligned with Whitehead's concept.

Some assessment tools use a holistic approach to assess PL. Most commonly, questionnaires are used to assess all components through self-assessment. Sum and colleagues (2018) created such an instrument in China, the *Perceived Physical Literacy Instrument* (PPLI). Currently, there are versions of the PPLI instrument for adolescents, the student population, physical education teachers, and older adults, while the adolescent version can be used in schools. The PPLI is probably the most practical assessment tool because it consists of only 9 items. However, the question immediately arises as to how precisely it can assess the 3 domains of PL through these 9 items. *The Physical Literacy Self-Assessment Questionnaire* (PLAQ) is another instrument constructed in China (YongKang & QianQian, 2022). The PLAQ is a valid and reliable self-assessment questionnaire for PL intended for children ages 8 through 12.

The problem with indirect measurement arises from the fact that self-assessment is usually not a valid indicator of the actual level of achievement, because it depends on several personal factors (ability to assess one's own competencies, tendency to give socially desirable responses, gender, etc.), especially when it comes to younger participants. The advantage of this group of assessment tools is certainly the time required to collect information, which ranges between ten and fifteen minutes.

There are assessment tools that are linked to PL by their name or purpose. However, they assess only one domain of PL, and mostly the physical domain. One such instrument is the *FMS assessment tool*, which assesses fundamental motor skills and is presented by the organisation *60 minutes Kids Club* (60MKC), based in Canada (Thermou & Riga, 2020). Since each domain is equally important, and given the fact that, without the development of all domains, it is unlikely that PL will be achieved, assessment tools like this one do not reflect the essence of PL.

Regardless of all existing instruments, none of them are universally accepted, meaning that there is no standardised solution. It will probably take some time to arrive at the most valid and reliable instrument for assessing PL. However, in the future, there will likely continue to be divided opinions on whether it is even possible to accurately assess physical literacy due to its complexity. Yet, some believe that the development of standardised assessment instruments may constitute an important step in intensifying PL activities, because valid and reliable assessment tools represent good opportunities to familiarise stakeholders with the holistic framework of the concept (Carl et al., 2022).

CONCLUSION

This paper has identified the current research on the definitions, components, and assessments of PL focused on children and adolescents. Teachers play a crucial and fundamental role in helping children develop the skills, confidence, and motivation necessary to take responsibility for engaging in physical activities throughout their lives. Clarifying the concepts of PL and providing clear guidance and information to teachers will enable them to act more effectively. In this direction, one of the goals was to present and explain the definition of PL. We emphasised the fact that PL is a complex, multidimensional concept that is defined, interpreted, and operationalised in many ways around the world and in different areas (e.g., education, sports, and public health). An adequate definition would need to identify the fundamental long-term goal of PL, which is engaging in physical activity throughout one's life. Additionally, we presented various PL models that clearly indicate the components important for an individual to be physically literate. In order for teachers to understand how to develop these components, it is suggested that researchers provide a

framework that contains clear and concise information, along with specific examples that would enable teachers to work effectively throughout the school year. Thirdly, existing PL assessment tools applicable in the context of physical education were analysed. Although some assessment tools are useful, none of them are universally accepted, and it will probably take some time to arrive at the best solution.

REFERENCES

Allan, V., Turnnidge, J., & Côté, J. (2017). Evaluating Approaches to Physical Literacy Through the Lens of Positive Youth Development. *Quest*, *69*(4), 515–530. doi: 10.1080/00336297.2017.1320294.

Almond, L. (2013). What is the Value of Physical Literacy and why is Physical Literacy valuable? *ICSSPE Bull J Sport Sci Phys Educ*, *65*(2), 14-22.

Balyi, I., Way, R., & Higgs, C. (2013). *Long-term athlete development*. Human Kinetics.

Belanger, K., Barnes, J. D., Longmuir, P. E., Anderson, K. D., Bruner, B., Copeland, J. L., Gregg, M. J., Hall, N., Kolen, A. M., Lane, K. N., Law, B., MacDonald, D. J., Martin, L. J., Saunders, T. J., Sheehan, D., Stone, M., Woodruff, S. J., & Tremblay, M. S. (2018). The relationship between physical literacy scores and adherence to Canadian physical activity and sedentary behaviour guidelines. *BMC Public Health*, *18*(Suppl 2), 1042. https://doi.org/10.1186/s12889-018-5897-4

Cairney, J., Dudley, D., Kwan, M., Bulten, R., & Kriellaars, D. (2019). Physical literacy, physical activity and health: Toward an evidence-informed conceptual model. *Sports Medicine*, *49*(3), 371–383.https://doi.org/10.1007/s40279-019-01063-3.

Carl, J., Bryant, A. S., Edwards, L. C., Bartle, G., Birch, J. E., Christodoulides, E., Emeljanovas, A., Fröberg, A., Gandrieau, J., Gilic, B., van Hilvoorde, I., Holler, P., Iconomescu, T. M., Jaunig, J., Laudanska-Krzeminska, I., Lundvall, S., De Martelaer, K., Martins, J., Mieziene, B., … Elsborg, P. (2023). Physical literacy in Europe: The current state of implementation in research, practice, and policy. *Journal of Exercise Science & Fitness*, *21*(1), 165–176. https://doi.org/10.1016/J.JESF.2022.12.003

Chen, S.T., Tang, Y., Chen, P.J., & Liu, Y. (2020). The Development of Chinese Assessment and Evaluation of Physical Literacy (CAEPL): A Study Using Delphi Method. *Int J Environ Res Public Health*, *17*(8), 2720. doi: 10.3390/ijerph17082720.

Chrisomalis, S. (2009). The origins and coevolution of literacy and numeracy. In D. R. Olson & N. Torrance (Eds.), *The Cambridge Handbook of Literacy* (pp. 59 - 74). Cambridge, UK: Cambridge University Press.

Comeau, M.E., Bouchard, D.R., Levesque, C., Jonhson, M.J., Rioux, B.V., Mayo, A., & Sénéchal, M. (2017). Association between functional movements skills and health indicators in children aged between 9 and 12 years old. *Int J Environ Res Public Health*, *14*(9), 1010. doi: 10.3390/ijerph14091010.

Corbin, C. B. (2016). Implications of physical literacy for research and practice: A commentary. *Research Quarterly for Exercise and Sport*, *87*(1), 14-27. doi: 10.1080/02701367.2016.1124722.

CS4L (Canadian Sport for Life). (2013). *Physical literacy assessment for youth*. Victoria, BC: Canadian Sport Institute.

Delaney, B. J., Donnelly, P., News, J., & Haughey, T. J. (2008). *Improving physical literacy*. Sport Northern Ireland.

Edwards, L. C., Bryant, A. S., Keegan, R. J., Morgan, K., & Jones, A. M. (2017). Definitions, foundations and associations of physical literacy: a systematic review. *Sports Medicine*, *47*(1), 113-126. doi: 10.1007/s40279-016-0560-7.

Edwards, L. C., Bryant, A. S., Keegan, R. J., Morgan, K., Cooper, S. M., & Jones, A. M. (2018). 'Measuring'physical literacy and related constructs: A systematic review of empirical findings. *Sports Medicine*, *48*(3), 659-682. doi: 10.1007/s40279-017-0817-9.

Farren, G.L., Yeatts, P.E., & Price, B. (2021). Measuring physical literacy and its association with interscholastic sports intention in sixth-grade physical education students. *Journal of Physical Education and Sport*, *21*(6), 3344 – 3355. doi: 10.7752/jpes.2021.0645

Fortnum, K., Furzer, B., Reid, S., Jackson, B., & Elliott, C. (2018). The physical literacy of children with behavioural and emotional mental health disorders: A scoping review. *Mental Health and Physical Activity*, *15*, 95-131. https://doi.org/10.1016/j.mhpa.2018.10.001

Green, N. R., Roberts, W. M., Sheehan, D., & Keegan, R. J. (2018). Charting physical literacy journeys within physical education settings. *Journal of Teaching in Physical Education*, *37*(3), 272–279. https://doi.org/10.1123/jtpe.2018-0129

Higgs, C., Balyi, I., Way, R., Cardinal, C., Norris, S., & Bluechardt, M. (2008). *Developing physical literacy: A guide for parents of children ages 0 to 12*. Vancouver, BC: Canadian Sports Centers.

Jurbala, P. (2015). What Is Physical Literacy, Really? *Quest*, *67*(4), 367-383. doi: 10.1080/00336297.2015.1084341

Leidl, R. (2013). A holistic approach to supporting physical literacy. *Physical & Health Education Journal*, *79*(2), 19.

Liu, Y., & Chen, S. (2021). Physical literacy in children and adolescents: Definitions, assessments, and interventions. *European Physical Education Review*, *27*(1), 96–112. https://doi.org/10.1177/1356336X20925502

Longmuir, P. E., & Tremblay, M. S. (2016). Top 10 research questions related to physical literacy. *Research Quarterly for Exercise and Sport*, *87*(1), 28-35. doi: 10.1080/02701367.2016.1124671.

Lundvall, S. (2015). Physical literacy in the field of physical education–A challenge and a possibility. *Journal of Sport and Health Science 4*(2), 113–118. https://doi.org/10.1016/j.jshs.2015.02.001

Macdonald, D., & Enright, E. (2013). Physical literacy and the Australian health and physical education curriculum. *ICSSPE Bull J Sport Sci Phys Educ*, *65*, 351-59.

Mandigo, J., Francis, N., Lodewyk, K., & Lopez, R. (2009). Physical literacy for educators. *Physical and Health Education Journal*, *75*(3), 27-30.

Mota, J., Martins, J., & Onofre, M. (2021). Portuguese Physical Literacy Assessment Questionnaire (PPLA-Q) for adolescents (15-18 years) from grades 10-12: development, content validation and pilot testing. *BMC Public Health*, *21*(1), 2183. doi: 10.1186/s12889-021-12230-5.

Robinson, D. B., & Randall, L. (2017). Marking physical literacy or missing the mark on physical literacy? A conceptual critique of Canada's physical literacy assessment instruments. *Measurement in Physical Education Exercise Science*, *21*(1), 40–55. https://doi.org/10.1080/1091367X.2016.1249793

Robinson, D., Randall, L., & Barrett, J. (2018). Physical Literacy (Mis)understandings: What do Leading Physical Education Teachers Know About Physical Literacy? *Journal of Teaching in Physical Education.* 37, 1-11. doi: 10.1123/jtpe.2018-0135

SHAPE America. (2013). *National Standards for K-12 Physical Education*. Reston, VA: Author.

Shearer, C., Goss, H., Edwards, L., et al. (2018). How Is Physical Literacy Defined? A Contemporary Update. *Journal of Teaching in Physical Education*, *37*, 1-9. doi: 10.1123/jtpe.2018-0136

Silverman, S., & Mercier, K. (2015). Teaching for physical literacy: Implications to instructional design and PETE. Journal of Sport and Health Science, *4*(2), 150-155. https://doi.org/10.1016/j.jshs.2015.03.003.

Spengler, J. O. (2015). *Physical Literacy: A Global Environmental Scan*. Aspen Institute.

Sport Australia (2019). *The Australian Physical Literacy Framework version 2.* Retrieved January 19, 2023, https://www.sportaus.gov.au/__data/assets/pdf_fle/0019/710173/35455_Physical-Literacy-Framework_access.pdf

Stoddart, A., & Humbert, L. (2017). Physical literacy is...? What teachers really know. *PHEnex Journal*, *8*(3), 1-18.

Stoddart, A. L., & Humbert, M. L. (2021). Teachers' perceptions of physical literacy. *The Curriculum Journal*, *32*(4), 741-757.

Sum, R.K., Ha, A.S., Cheng, C.F., Wallhead, T., Kuo, C.C., Wang, F.J., & Choi, S.M. (2018). Perceived physical literacy instrument for adolescents: A further validation of PPLI. *Journal of Exercise Science & Fitness*, *16*(1), 26-31. https://doi.org/10.1016/j.jesf.2018.03.002

Taplin, L. (2013). Physical Literacy as Journey. *ICSSPE Bull J Sport Sci Phys Educ*, *65*(2), 56-62.

Thermou, A., & Riga, V. (2020). Research review for the presence of physical literacy in the world. *European Journal of Physical Education and Sport Science*, *6*(3), 92-113. doi: 10.5281/zenodo.3748022.

Tremblay, M., & Lloyd, M. (2010). Physical literacy measurement: The missing piece. *Physical and Health Education Journal*, *76*(1), 26-30.

Tremblay, M.S., Costas-Bradstreet, C., Barnes, J.D. et al. (2018). Canada's Physical Literacy Consensus Statement: process and outcome. *BMC Public Health*, *18*(Suppl 2), 1034. https://doi.org/10.1186/s12889-018-5903-x

Vučinić, D., & Antonijević, R. (2020). Teachers' roles in meeting quality-expectations in the educational process. *Teme: Journal of Social Sciences*, *44*(3), 723-744. https://doi.org/10.22190/TEME181214054V

Whitehead, M. (Ed.). (2010). *Physical literacy: Throughout the lifecourse*. Routledge.

Whitehead, M. (2013). What is physical literacy and how does it impact on physical education? In S. Capel, & M. Whitehead, (Eds.), *Debates in Physical Education* (pp. 37-52). Routlege.

Whitehead, M. (2013b). Definition of physical literacy and clarification of related issues. *ICSSPE Bull J Sport Sci Phys Educ*, *65*(2), 28–33.

YongKang, W., & QianQian, F. (2022). The Chinese assessment of physical literacy: Based on grounded theory paradigm for children in grades 3–6. *PLOS ONE*, *17*(9), e0262976. https://doi.org/10.1371/journal.pone.026297

ПОЈАМ, ДЕФИНИСАЊЕ И ВРЕДНОВАЊЕ ФИЗИЧКЕ ПИСМЕНОСТИ У ОБРАЗОВНИМ СИСТЕМИМА У СВЕТУ

Александар Пајкић[1], Ивана Милановић[2], Снежана Радисављевић-Јанић[2]
[1]Универзитет у Бањој Луци, Факултет физичког васпитања и спорта, Бања Лука, Босна и Херцеговина
[2]Универзитет у Београду, Факултет спорта и физичког васпитања, Београд, Србија

Резиме

Концепт „физичке писмености“ (ФП) званично је представила Маргарет Вајтхед 2001. године, а као основне мотиве за развој овог концепта навела је све већи постотак физички неактивне деце и одраслих, те давање превелике пажње искључиво физичким компонентама појединца. Уместо тога, ФП је представљена као холистички концепт који је усмерен на развој целе личности, где су ум и тело једно, а главни циљ ФП је физичка активност и промовисање важности бављења физичком активношћу током живота (Whitehead, 2010). Потребно је указати на то да ФП обухвата не само моторичке вештине и способности, већ и мотивацију, знање, разумевање и ставове неопходне за бављење физичком активношћу током целог живота, што се може закључити и из најприхваћеније дефиниције ФП, која гласи: „Физичка писменост се може описати као мотивација, самопоуздање, физичке компетенције, знање и разумевање да се вреднује и доживотно бави физичком активношћу“.

ФП као концепт је последњих година привукла пажњу научне заједнице, али и практичара из области физичке културе, а посебно се истиче њен потенцијал за подстицање физичке активности деце и младих (Silverman & Mercier, 2015; Allan, Turnnidge & Côté, 2017). У том смеру, предмет физичко васпитање је идентификован као једно од најприкладнијих окружења за развој ФП код деце и младих, а посебно је наглашена важност наставника физичког васпитања у циљу развоја и промовисања ФП у школском окружењу.

С обзиром да се ради о новијем концепту, одређени радови указују да постоји конфузија код наставника физичког васпитања о томе како они схватају концепт ФП, и како треба да га имплементирају у наставни процес, те углавном не могу адекватно да концептуализују ФП. Појашњавање концепата ФП и пружање јасних смерница и информација наставницима омогућиће њихово квалитетније деловање. У том смеру, циљ овог рада је да пружи свеобухватан преглед концепта ФП, са фокусом на дефинисање и процену ФП у оквиру образовних система у свету, односно у оквиру наставе физичког васпитања.

У овом раду, јасно је представљена дефиниција ФП, с обзиром да постоје различита схватања и различити приступи тумачењу овог концепта. Поред тога, представљени су различити модели ФП који јасно упућују на одређене компоненте које су према тим моделима важне да би појединац био физички писмен. Такође, анализирани су и постојећи инструменти за процену ФП, као и различити приступи процени ФП, те су идентификоване њихове предности и недостаци.