



Definitions, Foundations and Associations of Physical Literacy: A Systematic Review

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PURPOSE

The purpose of this systematic review was to collate, analyse and evaluate the core attributes of the physical literacy construct, as reflected in contemporary research literature (up to March 2016).

A DEBATED DEFINITION



While there are many organizations, research groups and governments currently promoting physical literacy interventions around the world, **the definitions adopted differ** (Keegan et al., 2013). This chaotic situation may **undermine the meaningful measurement of physical literacy, interpretation of findings, and prevents any meaningful accrual/agglomeration of research findings** (Keegan et al., 2015). The importance of distinguishing between physical literacy and physical activity is emphasized by Whitehead (Whitehead, 2013), who offered the definition of physical literacy as **“the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life.”** There exists a **range of overlapping terms**, such as movement literacy, aesthetic literacy, health literacy and games literacy. Not only are there different ways of defining and operationalizing physical literacy, there are also a **range of competing constructs** that may occupy very similar conceptual space. In order for a coherent research tradition to develop, it is necessary to **reach a level of clarity and transparency** in relation to core constructs and, indeed, a level of consensus between researchers (Lakatos, 1970). When a study claims to have measured or promoted physical literacy, and supported or refuted the associated theoretical claims, it is important to know exactly what was measured and what claims were tested. A further reason that research paradigms can degenerate is when there is no clarity regarding the underlying philosophy, or assumptions regarding the nature of the phenomena being studied (Lakatos, 1970). **Whitehead** has proposed relatively **detailed philosophical groundings** for physical literacy, drawing from phenomenology, existentialism and monism (Whitehead, 2013). As well as understanding the defining properties of physical literacy and the underpinning philosophy, the final step in articulating a coherent ‘paradigm’ is to detail the **theoretical associations and predictions offered by the theory**. Such predictions could then be operationalized and tested, and these tests would be instructive as to whether the underpinning theory, assumptions and definitions are valid. It is evident from the above discussion that **there are a number of inconsistencies surrounding physical literacy**; however, these contrasting arguments have not yet been evaluated systematically. To remedy this situation, the current paper adopted the **systematic review methodology** with a view to summarizing, appraising and communicating relevant research. This paper will explore and critically discuss: What are the **(a) defining attributes; (b) philosophical underpinnings; and (c) theoretical associations** of physical literacy in peer reviewed, published papers that attempt to define the concept?

SYSTEMATIC REVIEW METHODOLOGY

An electronic search strategy was employed using the following databases: (i) SPORTDiscus; (ii) MEDLINE (via PubMed); (iii) Scopus; (iv) ScienceDirect; and (v) Education Research Complete. The last search was conducted on 22 March 2016. The Boolean logic combinations search strategy was adopted to include search terms relevant to the study. The authors screened papers against an identified eligibility criteria and followed PRISMA guidelines. As a result 50 papers were identified to be included in the qualitative synthesis. Qualitative synthesis using thematic analysis was conducted on the 50 applicable papers as the systematic review was concerned with meanings and semantics and not quantitative data.

FINDINGS

The analysis identified a total of 694 codes, which were organized into 37 core categories and 13 subthemes; these were then organized into higher-order themes representing the three aspects of our research question.

Table 1. Physical literacy hierarchical structure, including core categories, subthemes and higher-order themes. Numbers in parentheses represent the number of papers that referred to the core categories apparent, of a possible 50 papers.

Core categories

Confidence (26)
Motivation (23)
Self-esteem (4)

Knowledge and understanding of activities (16)
Knowledge and understanding of healthy and active lifestyles (13)
Value and take responsibility for physical activity (2)

Movement capacities (22)
Motor skill competence (18)
Physical competence (12)
Fundamental movement skills (8)
Purposeful physical pursuits (6)
Throughout the lifespan (19)

Unique journey (7)
Long-term Athlete Development (LTAD) Model (5)
Children (13)
All can develop physical literacy (3)
Importance for adults (3)

Read/interact with environment (14)
Movement with poise and economy (5)

Health literacy (3)
Aesthetic literacy (1)

Develop whole person (15)
Embodied (16)
Monism (16)
Human disposition (8)

Phenomenology (8)
Existentialism (7)

Meaningful experience (5)
Pragmatic reality (3)
Not a pedagogical model (2)

Physical activity (22)
Health behaviours (13)

Engage, enthuse and enjoy (13)
Support from significant others (10)
cognitive/academic performance (4)

Physical education (38)
Sport sector (8)

Subthemes

Affective

Cognitive

Physical capabilities

Target audience

Holistic concept

Related constructs

Ontological assumptions

Epistemological assumptions

Pedagogical implications

Behavioural characteristics

Psychological, social and attitudinal

Contextual

Higher-order themes

Properties of PL

Philosophical underpinning

Associations and relationships

This systematic review has mapped the **defining properties, underpinning philosophy and theoretical associations** of physical literacy that are reflected in the existing published peer-reviewed literature. **Seventy percent** of the articles that **referred to the term ‘physical literacy’ adopted a ‘Whiteheadian’ perspective**. Accordingly, we recommend that researchers be **explicit in their definition of physical literacy**, the **philosophy they adopt** and the **theoretical predictions** they are testing for clarity and consistency. Under philosophy, papers that specified a clear philosophical standpoint focused on the ‘Whiteheadian’ combination of phenomenology, existentialism and monism.

FINDINGS

Defining Properties

Overall, common themes from the data highlight that physical literacy is conceptualized as the interactive and simultaneous consideration of competence in physical skills, confidence, motivation towards physical pursuits, and the valuing of physical movement and/or interacting with the physical world. The concept is applicable across the lifespan, to individuals of all ability levels, and will be experienced differently by every person, resulting in an individual 'physical literacy journey'.

The analysis suggests that the Whiteheadian conceptualization of physical literacy covers a wider range of movement types/skills, and psychosocial attributes, as it extends beyond competitive sport participation as the main vehicle for 'purposeful physical movements'. On the other hand, in all of the papers discussing the LTAD paradigm, the LTAD focuses on developing the physical elements of physical literacy.

Most of the papers that seek or achieve publication in peer-reviewed academic journals adopt a conceptualization based on the 'Whiteheadian' definition. While our analysis reflects aspects of different approaches to physical literacy, 70 % of the papers in this study (35 papers) adopted the conceptualization put forward by Whitehead, of which eight papers were written by Whitehead herself.

Our analysis highlights key differences between different standpoints; namely, inconsistencies between a holistic definition and a definition solely from the physical domain. A necessity to either resolve these differences or accept and embrace diverse approaches to promoting physical literacy is pertinent.

Philosophical underpinnings

Our analysis sought to identify the philosophical underpinnings of physical literacy in terms of (a) the aims and purpose of physical literacy; (b) the ontology and epistemology of physical literacy; and (c) the pedagogy of promoting and supporting physical literacy. The aims are aligned to the ontological and epistemological assumptions that arise from attempting to combine phenomenology, existentialism and monism. Such a combination of assumption sets is challenging for practitioners and researchers to access, operationalize and put into practice. Therefore, these assumptions require further articulation or better communication in order to connect with both researchers and practitioners working in this area. Once these aims and underlying assumptions are accepted, then the resulting pedagogy must focus on the whole person, the individualized learning, ipsative evaluation that focuses on individual progression, and contextualized real-world experiences. Notably, this was the only philosophy offered by the papers included in our analysis, with no alternative approaches to philosophical underpinnings available. It may become important to consider how physical literacy would be operationalized under different assumption sets, such as empiricism, post-positivism, and critical realism.

Theoretical associations and relationships

Our findings suggest that physical literacy is proposed to be associated with a wide array of behavioral, psychological, social and physical variables, as well as linked to specific contexts in which physical literacy can be developed. It is unlikely that the list generated in our analysis is exhaustive, as elsewhere physical literacy has been linked to outcomes such as cardiovascular fitness, strength, motor skill, and obesity/overweight status. Additionally, however, it was extremely rare for papers to specify the direction of the relationship between physical literacy and its associated construct, and bidirectional causation was plausible in many cases. As such, there is an emerging need to both test which variables contribute to the development of physical literacy and test those that are enhanced by the development of physical literacy. As noted above, the nature of the experiments and tests used should, ideally, be aligned to a specific philosophical approach, and in many ways the approach offered by combining phenomenology, existentialism and monism does not submit as readily to traditional empirical testing, such as randomized controlled trials.