

*Note.* This article will be published in a forthcoming issue of the *Journal of Teaching in Physical Education*. The article appears here in its accepted, peer-reviewed form, as it was provided by the submitting author. It has not been copyedited, proofread, or formatted by the publisher.

**Article Title:** A 20th Century Narrative on the Origins of the Physical Literacy Construct

**Authors:** John Cairney<sup>1</sup>, Tia Kiez<sup>2</sup>, E. Paul Roetert<sup>3</sup>, and Dean Kriellaars<sup>2</sup>

**Affiliations:** <sup>1</sup>University of Toronto, Toronto, Ontario, Canada. <sup>2</sup>University of Manitoba, Winnipeg, MB, Canada. <sup>3</sup>University of Florida, Gainesville, FL.

**Running Head:** Early origins of physical literacy

**Journal:** *Journal of Teaching in Physical Education*

**Acceptance Date:** November 15, 2018

©2019 Human Kinetics, Inc.

**DOI:** <https://doi.org/10.1123/jtpe.2018-0072>

## **A 20th century narrative on the origins of the physical literacy construct**

John Cairney  
University of Toronto  
john.cairney@utoronto.ca

Tia Kiez  
University of Manitoba  
Tia.Kiez@gmail.com

E Paul Roetert  
University of Florida  
eproetert@gmail.com

Dean Kriellaars  
University of Manitoba  
Dean.Kriellaars@med.umanitoba.ca

## ABSTRACT

While it is commonly thought that physical literacy is an early 21<sup>st</sup> century construct, and is often credited to Margaret Whitehead, in fact, the term physical literacy can be traced back to the late 1800s. In this narrative, we review descriptions of physical literacy that appeared in the later 19<sup>th</sup> and early to mid 20<sup>th</sup> century literature and show how physical literacy is historically tied to the reoccurring contextual issue of threats to active lifestyles and how definitional components of the construct have both remained consistent, while others changed over the course of the century. We conclude by discussing some tensions that have arisen with the Whiteheadian construction of the term, as well as the conflation of the term with fitness or physical education. In doing so, we hope to open up greater discussion of the multi-disciplinary potential of this construct.

**Keywords:** movement skills, history, motor competence, physical activity

## INTRODUCTION

Margaret Whitehead can be credited as being the modern champion of physical literacy. Arguably, her most important contribution was to re-cast the construct within a particular philosophical perspective (existentialism). By providing a more extended treatise on its features and its place within practices of physical education, a practice that embraces embodiment as a core experiential tenet, she gave both a novel and contemporary perspective to the construct (Whitehead, 2001, 2010) at exactly a point in history where growing disease or dissatisfaction with *physical activity qua physical activity* was emerging across many sectors (e.g., public health and education). Indeed, the inability of numerous approaches to move populations to become more physically active, and perhaps even prepare them to safely and actively participate in life, has resulted in some stagnation, and perhaps frustration, within some sectors. Physical literacy, with its emphasis on the whole person and a focus on conditions (individual, environmental, and social) that are necessary for life-long and safe engagement in physical activity, offers hope that by raising physical literacy, we can in turn raise the overall level of active participation as well, and in many minds curb the onslaught of non-communicable disease from a hypokinetic society. Therefore, the importance of Whitehead’s contribution lies not in creation, but in re-envisioning the construct at a critical moment in history.

The adoption of physical literacy as a worldwide “social movement” has been remarkable. Edwards and colleagues (2018) stated that “physical literacy has been referred to, in a metaphorical sense, as developing literacy within a physical setting, synonymous to reading and writing, and specific to the culture in which individuals live” (p. 114). This parallel to the well-established literacy movement has certainly resonated with many (Dudley, Cairney, Wainwright, Kriellaars, & Mitchell, 2017), but may run contrary to the position of Whitehead. Using the literacy lens,

physical literacy has been proposed as foundational for policy development in public health, education, sport, and recreation sectors (Dudley et al., 2017). The speed and level of adoption of physical literacy makes this construct of special interest in its potential role of transforming society from a movement-suppressed culture to a movement rich one (Keegan, Keegan, Daley, Ordway & Edwards, 2013). The speed of adoption of the construct is also likely due to its cross-sectorial appeal. In fact, in 2018, the World Health Organization Global Action Plan on Physical Activity now includes physical literacy (World Health Organization, 2018) in the first objective of creating an active society:

Develop a national communication strategy for physical activity as part of, or aligned with, a national action plan on physical activity to raise awareness and knowledge of the health benefits of physical activity, promote behavior change and increase health and physical literacy. (p. 63)

The Physical Activity Action Plan for Canada (Public Health Agency of Canada, 2018) takes this one step further, identifying physical literacy as first of the five foundational interconnected principles for physical activity for all. Physical literacy is now established in numerous countries as a key factor in improving the health of their populations, and as such this is a critical time period for intellectualization of the construct.

If, however, we de-contextualize physical literacy from its historical underpinnings, and position it only within the philosophical frame provided by Whitehead, then we run the risk of missing an opportunity to embrace a more multi-disciplinary perspective on the construct, and therefore close off other ways of knowing and researching it. Deploying multi-disciplinary lenses to investigate the physical literacy construct as both process and state should lead to interdisciplinary harmonization and synthesis of knowledge, and ultimately trans-disciplinary integration of knowledge gleaned from across discipline boundaries into a humanities and social science context (Choi & Pak, 2006). Paradoxically, such an approach could come full circle and

illustrate that both a trans-disciplinary and an existentialist view of physical literacy could be embraced as a different ways of “knowing” physical literacy.

We will recount descriptions of the construct used in the late 19<sup>th</sup> and 20<sup>th</sup> centuries. We will re-trace the origins of the construct in the hopes of both showing it as a product of specific social and historical conditions (e.g., the rise of industrialization and the emergence of a movement-suppressed culture). In doing so, we will emancipate it from a single intellectual tradition and re-position it as a complex, multi-disciplinary construct that offers at least the potential to provide greater insights into creating a thriving human existence with meaningful active and safe participation (eudemonia) with numerous downstream positive health outcomes that have eluded modern society.

Given the importance and influence of Whitehead’s work, we have chosen to restrict the period of consideration by tracing back from her initial published work to a point in history where we see the emergence of the term. Thus, the publication of Whitehead’s first paper on physical literacy (2001) in the start of the 21<sup>st</sup> century provides a line in the flow of history, which we can use to re-trace the origins of the construct. Readers are directed to Corbin (2016) for a 21<sup>st</sup> century summary of physical literacy.

### **From the US Army Corps of Engineers to Whitehead**

One of the earliest uses of the term we could find dates back to 1884, where an American, Captain Edward Maquire, used the term in a colorful description of the physicality of an indigenous culture in his professional notes in the Army Corps of Engineers (Maquire & United States Army Corps of Engineers, 1884). He used the term to capture the movement quality of the peoples he observed, embedded within a specific social context: a celebration involving dance, other movements and feasting. Following that early reference, there was considerable utilization

of the term commencing in the 1920s, largely by American educators, in response to a lifestyle threat arising from the era of modernization through mechanization, the need to prepare army recruits, and in response to the National Physical Education Service created by the United States Commissioner of Education and 35 national organizations in February 1918, to promote “universal physical education.” The following quote captures this positioning: “We must prepare for physical literacy as well as for mental literacy. A physically fit America becomes more necessary with modern mechanical inventions. If education is preparation for life, then we must give to every American boy and girl that *physical preparedness*...” (Pennsylvania State Education Association, 1930, p. 12).

This quote emphasizes the concerns of the authors over the threats to health associated with modern urban living, while positioning “public schools” as institutions that must be prepared to combat this threat through proper development of physical and mental abilities: “Public schools are responsible for *physical literacy* as well as for mental literacy. Our urban, industrial, mechanical, standardized machine civilization, with its stresses and strains, has produced new American diseases” (National Education Association of the United States Department of Secondary Teachers, 1935, p. 288).

Also evident in these quotes is the positioning of “physical literacy” to be on equal footing to “mental” literacy, as the principal objectives for education. The plea to include the physical alongside other “literacies,” to value it and view it as important, as for example numeracy (mathematical literacy) or literacy, is familiar to contemporary physical educators. Both quotes clearly position the need for physical literacy as an antidote against the potential consequences of modernity. The readers will recall, that after the appearance of the first “automobile” produced by Karl Benz in 1895, it took less than two decades to have over 15 million “Ford Model T” cars

delivered to Americans, heralding to the American public a remarkable change in the living condition.

In fact, there were two other waves of physical literacy literature that occurred in apparent response to lifestyle threats: a wave from 1955 to 1973, after the commencement of the electronic era (post-transistor invention in 1947), and a second more recent wave as a result of the commencement of the internet era (after the creation of the world wide web in 1990). With each period of mechanization, electronics, and the internet, an unintended consequence of these engineering innovations was the erosion of physicality of our cultures. It was relatively early in the 20<sup>th</sup> century, that the medical establishment realized the misstep – that benefits of medical advances were being outstripped by the decreased physical nature of the population. For instance, a surprisingly prophetic view of physical literacy and its relationship to medical care was also articulated around this period by the American Medical Association (1939): “...fact that outstanding improvements in health and medical science have been achieved there are signs that physical illiteracy is increasing in this country. The public schools are as much responsible for physical literacy as for mental literacy.” (p. 130)

While again there is positioning of physical literacy within the core mandate of education, the attribution of improvements in both health and medical science to increases in physical literacy is quite striking. The fact that physical literacy was chosen over, for example, physical activity or exercise, suggests recognition that knowledge of health may be insufficient for action (knowledge is not equated necessarily with action). We offer as further conjecture that campaigns to improve literacy had palpable effects on health (specifically infectious disease reduction through public health measures and improvements in mortality), largely by acting directly on the social determinant of health, but did little to address lifestyles (e.g., sedentary behaviour, physical

inactivity, sleep, and diet) that are negatively associated with health. This could be at least partially attributed to the exclusion of the “physical” from literacy.

The notion that physical literacy may be the gateway to active participation, leading to the development of physical fitness, and ultimately the ability to live well was articulated by the early 1930s. James Edward Rogers, the director of the National Physical Education Service in New York stated, “physical illiteracy is on an increase in this country. In the future it will be increasingly more difficult for boys and girls to live *physically well and to keep fit*” (National Education Association of the United States, 1932, p. 464).

It is important to note that the earliest published references to physical literacy appears in the American literature. The term and its use in these early years came with many of the modern connotations that we ascribe to it today, albeit lacking explicit recognition of the contribution of cognitive (motivational) and affective domains. It is safe to say, that physical literacy was an American invention and that sadly, it appears not to have had the same social contagion that literacy, or even mathematical literacy, have had over the course of this last century.

As the concept evolves over time from these early descriptions, several other noteworthy observations can be made. First, we begin to see allusions to the notion that physical literacy embodies more than the simple form of the body. In 1938, Dr. L.P. Jacks stated, “...*physical literacy*, which is something very different from beef and brawn, must be the first characteristic of our ideal type of citizen. Physical health is in itself not, however, sufficient.” (Cunningham, Radford, & Australian Council for Educational Research, 1938, p. 180).

Again, the notion that physical literacy is larger than physical health, that it embodies both knowledge and the ability to act on it, clearly elevate the construct to a plane higher than simply physical movement, or in the modern era, the focus on competency in fundamental movement

skills, on its own. Certainly, the lack of a specific definition of physical literacy at this time allowed for groups to focus on specific elements of the construct, rather than the development of physical literacy as a whole. This led to confusion and conflation of the term that still persists to this day.

Even in the early years, the term physical education was sometimes conflated with physical literacy. From the discourse of the text it was evident that educators of this era saw that physical education, at all levels, was a key sector in the development of physical literacy of children and youth.

The value of physical education (or physical literacy) has proven its worth to the extent that recognition, and often requirement, is exacted for graduation from grammar and high schools. Virginia is making progress in this direction as physical education has been made a credit requirement for graduation in a number of our counties. Many of the leading colleges and universities now accept one unit of credit in physical and health education within the required college entrance credits (Smithey, University of Virginia, & Virginia Committee for Research in Secondary Education, 1927, p. 67).

In a quote from 1937, an interesting implied definition of physical literacy appeared as “a disciplined command over the body,” which appeared to parallel the early competency-based definitions of literacy (the ability to read and write). Further, this quote also illustrated the broad contexts in which this “command over body” must exist from locomotion to recreation to vocations. The authors of this quotation also implicitly recognized that physical literacy was a life-long journey by including both childhood and adult activities:

We are so inclined to regard education as primarily concerned with knowledge in a narrow sense that we tend to concentrate on what I may call intellectual literacy. There is however, a physical literacy — of the body, the hand, the eye and the ear; and, elusive though it be, a literacy of the spirit. These literacies, like intellectual literacy, do not result from a narrow concentration on them. Games, climbing, walking, dancing and manual occupations such as carpentry, building and so on, all conduce to *physical literacy*: that is to a disciplined command over the body. The same is true of literacy of the ear (British Institute of Adult Education & National Institute of Adult Education (England and Wales), 1937, p. 224)

Although there was evidence in the discourse of the time that physical literacy was a critical component of holistic child development (see quotation below), there were no specific models or frameworks offered that articulated how this would manifest in curricular offerings in educational settings:

If the purpose of education is to train the child for living, he should be trained for complete living. The whole child should be trained. His special talents and interests, his integrity and originality, his health and emotions are all a part of his life which should be developed. Physical literacy is just as important as mental literacy, and both are essential parts of the educational program. Yet without our resources there would be no need for either physical or mental literacy (Pennsylvania Department of Public Instruction, 1941, p. 10).

These early historical uses of the term display remarkable overlap and consistency of the recent manifestations and clearly the intent was to, as we noted previously, position the physical within a broad, holistic framework of literacies. Unlike the attribution of physical literacy to increases in health and well-being noted in the previous definitions, by the 1950s, the erosion of physical literacy relative to literacy and other instrumental subjects became increasingly evident: ‘... the "instrumental" subjects, the means whereby all other educational activities are approached. There is less agreement as to the need for teaching a modicum of physical skills which might form, so to speak, the basis of "*physical literacy*"’ (Panton, 1945, p. 34).

In the previous quotation, it is clear that at least some scholars began to focus on the delivery of basic human movement skills, and although movement skills were viewed as foundational to physical literacy, there was an absence of discussion about the means to establish the other features necessary for development of physical literacy as a whole. After World War II, a number of publications began to focus on this specific sub-domain of the construct, that of movement skill development. Although, at this time the works clearly differentiated physical literacy from the physiological attributes (now known as health-related fitness) that might arise from simple exercise. The publications of the day saw motor skill development (over-simplified

physical literacy) as the antecedent to becoming fit. In 1958, the Canadian Association for Health, Physical Education, and Recreation (CAHPER), now known as Physical Health Education (PHE) Canada, stated:

In addition to these physiological aspects, we need also a considerable amount of skill...we need a great deal more "physical literacy" than one would need if he were doing nothing other than walking or something like that. By "physical literacy" we mean that the individuals should be as skilled in motor ways ... (Canadian Association for Health, Physical Education, and Recreation, 1958, p. 123).

Similarly, Krug (1960) stated,

Closely related to the fitness objective, although not exactly the same, is what some call *physical literacy*, that is, specific motor skills. This objective is an inherent characteristic of the subject, much as the learning of history is inherently related... (p. 401)

Although to this point in history, many authors identified multiple facets to the construct of physical literacy, there was a focus on movement competency. However, in one of the first definitions (descriptions) of physical literacy by George Morrison, in 1969, as cited by Wall (1994), he proposed:

To be physically literate, one should be creative, imaginative, and clear in expressive movement, competent and efficient in utilitarian movement and inventive, versatile, and skillful in objective movement. The body is the means by which ideas and aims are carried out and, therefore, it must become both sensitive and deft. (p. 325)

This clearly identified that physical literacy was much more than just the development of competency of fundamental land-based movement skills. Although the core of his description was motor competency, he articulated that creativity, imagination, versatility, and inventiveness were obligatory features as well. Although not explicit, this description opened the door to notions that physical literacy is not simply acquired by performance of rote movement. The implication was that the physically literate person needed the decision-making ability and versatile movement repertoire to select, sequence, and modify movement for social and environmental contexts.

It is clear from the mid 1930s to the middle of the 20<sup>th</sup> century, that the ultimate goal of becoming physically literate was not engagement in physical activity per se, but the ability to actively participate in society:

Work experience and fitness activities centered around work experience provide a second approach, with possibilities for physical literacy. Activities on the farm, with its extensive and varied equipment and machines and its animals, are one example. However, such activities may not provide adequate opportunity for social growth. Approaches to physical fitness: there are many channels for development of the physical literacy that plays such an important part in fitness and education for the art of living (Kelly & Stafford, 1965, p. 8).

Finally, the conflation of physical literacy with fitness that is evident in some models of physical literacy (Tremblay & Lloyd, 2010) appears to be more modern, embodied in this advertisement in *The Instructor*:

With winter over there's no better time to gear up your school for The New PE, which emphasizes physical literacy for all students, not just a talented few, for the rest of their lives. More and more doctors acknowledge the part that daily body strengthening exercise in childhood plays in the health we enjoy as adults. If your school is already participating in the new PE, we're interested. Write and tell us about your program (The Instructor, 1979, p. 78).

When considered collectively, this collection of quotes highlights a number of interesting points regarding the evolution of the construct. The construct's origins can be traced back as far as the late 1800s, having first appeared in the United States in response to threats to a physically active lifestyle. While many regard physical literacy as a distinctly British concept, this would appear to be a fallacy. While the use of the term contains many features with the modern, definitional conceptualizations, there are also some important differences. Among the most noticeable is the modern emphasis on confidence and motivation, which are decidedly more psychological in tone than earlier uses of the term. These elements first appear in Whitehead's writing when she identifies confidence as a central definitional element (2010). Historically and to this day, physical literacy has been viewed instrumentally as a means to combat the ills of

modernization and secure better health and broad participation in life. Interestingly, Whitehead (2010) has argued against using physical literacy in this way. Rather, physical literacy is seen to be synonymous (embodied) with existence – what it is to be human – not as a tool for achieving other ends.

### **Whitehead’s Philosophical Turn and Tensions in Contemporary Theorizing**

Despite its early origins, physical literacy has not been subject of extended debate until recently (Whitehead, 2010). We have chosen to focus our definitional re-tracing at the time of publication of Whitehead’s first paper (2001), as this is often considered the “birth” of the concept. We would be remiss, however, if we did not comment on some tensions that have arisen in what we might call the Whitehead period, and that in many ways, have and will continue to shape the evolution of the concept.

First, Whitehead has positioned physical literacy within a specific, philosophical tradition – existentialism – which has led to debates about whether the construct, as formulated by her, can be studied from other perspectives/paradigms. Here we are thinking specifically of positivism/empiricism. Debates have arisen at the fault lines of these different traditions to include whether we can measure physical literacy at all (is it observable and quantifiable), and is physical literacy a predictor (determinant of other behaviors, such as physical activity) of outcomes such as mental and physical health, and the like? If one credits Whitehead as the progenitor of the construct, then one can take a doctrinaire position and reject outright alternative systems of knowing, arguing instead that the construct cannot be separated from its existential underpinnings. Alternatively, if we study the history of the construct, we can see that it does not easily reside in a single philosophical tradition. To this last point, it is our position that continued development of the

construct can only happen if we embrace a multi-disciplinary approach, even progress toward evolution of the construct in a trans-disciplinary manner.

Second, another perspective within the contemporary literature concerns whether there is anything new to physical literacy at all. As we have shown, the construct has been discussed through the 20<sup>th</sup> century, which on the surface would reinforce this very point. However, as we have shown, there are considerable consistencies in the conceptualization over time with our modern conceptualization, and it would be wrong to conclude that the concept has not evolved (and that it will not continue to do so). Here, though, we must address a critical tension. Part of the criticism that there is nothing new is often used to support the notion that at best, physical literacy is really synonymous with physical education (an example of a rose by any other name) and at worst, the uncritical adoption of the construct is but a fad, and one that potentially harms (denigrates or downplays) traditional physical education practice (an example of eating ourselves by playing a potentially treacherous semantic game that produces real and negative consequences). The latter point is most eloquently argued by McKenzie and Lounsbery (2014), who hold that the adoption of the construct has displaced psychomotor outcomes as the prime focus of physical education, and replaced it with cognitive outcomes. In this context, however, their concerns have less to do with physical literacy as an academic construct, and more to do with how one organization (Society for Physical and Health Education [SHAPE] America) has re-defined the practice standards that follow adoption of physical literacy as a guiding framework. This is certainly a harbinger for how, perhaps intentionally, adoption of a narrow conceptualization of physical literacy could have significant and potentially negative practical considerations for policy (Dudley et al., 2017). However, this argument is weak for building a case for rejecting the construct

outright. This may not be a problem with the definition per se, but rather a problem of interpretation and/or operationalization.

## CONCLUSION

The history of the construct certainly dates back to the late 1800s and was prominent in American Education circles (1918-1940), and certainly evident in both Australian and British educational contexts by the 1930s. It is clear that the concept reared its head in waves largely timed to lifestyle threats from modernization (mechanization to electronics to internet). Unlike literacy and mathematical literacy that had strong footholds and momentum through the 20<sup>th</sup> century, sadly physical literacy did not gain traction until its recent emanation in the 21<sup>st</sup> century (Corbin, 2016). The narrative of the 19<sup>th</sup> century clearly articulates an evolution of construct that paralleled literacy, and identified it as a developmental, life course issue for safe and active participation in all contexts by development of a diverse set of movement competencies that needed to be deployed by the individual in imaginative and creative ways. Further, the early manifestations of the physical literacy construct was differentiated from construct of fitness and was not conflated with physical activity (it was seen as the antecedent to both). In re-tracing these definitions and attempting to identify its origins, we hoped to show that the construct is in fact broader than some would be lead to believe given the interest that has been generated through Whitehead’s work. Perhaps the most powerful aspect of physical literacy is that it is a synthesis construct, weaving together many different disciplinary threads. This, above all else, likely explains the traction it has had across sectors and different contexts. The question remains, will this ground-swell of interest in the construct lead to positive change in society (Keegan et al., 2013; World Health Organization, 2018)? Or, will physical literacy, despite its longevity thus far, fade, rendering it nothing more than a fad, as others have described it (Lounsbery & McKenzie, 2015)? Only time will tell.

## REFERENCES

- American Medical Association. (1939). Hygeia. *American Medical Association*, 17(1-6), 130.
- British Institute of Adult Education & National Institute of Adult Education (England and Wales). (1937). Adult Education. *National Institute of Adult Education*, 10, 224.
- Choi, B. C., & Pak, A. W. (2006). Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: Definitions, objectives, and evidence of effectiveness. *Clinical Investigations in Medicine*, 29, 351-364.
- Corbin, C. B. (2016). Implications of physical literacy for research and practice: A commentary. *Research Quarterly for Exercise and Sport*, 87, 14-27.  
DOI: 10.1080/02701367.2016.1124722
- Cunningham, K.S., Radford, W.C., & Australian Council for Educational Research. (1938, August-September). *Education for complete living, the challenge of to-day*. Proceedings of the New Education Fellowship Conference. Melbourne University Press.
- Dudley, D., Cairney, J., Wainwright, N., Kriellaars, D., & Mitchell, D. (2017). Critical considerations for physical literacy policy in public health, recreation, sport, and education agencies. *Quest*, 69, 436-452. DOI: 10.1080/00336297.2016.1268967
- 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, 659-682. DOI: 10.1007/s40279-017-0817-9
- The Instructor. (1979). No Title. Instructor Publications, Incorporated.
- Keegan, R.J., Keegan, S.L., Daley, S., Ordway, C., & Edwards, A. (2013). *Getting Australia moving: Establishing a physically literate & active nation (Game Plan)* (Report No. 9781740883719). Retrieved from University of Canberra at <https://www.canberra.edu.au/research/institutes/ucrise/research/physical-literacy/getting-australia-moving/Game-plan-pdf.pdf>.
- Kelly, E.D., & Stafford, G.T. (1965). *Adapted and corrective physical education* (4th ed.). New York, NY: Ronald Press Co.
- Krug, E. A. (1960). *The Secondary School Curriculum*. New York: Harper and Brothers.
- Maguire, E., & United States Army Corps of Engineers. (1884). *Professional notes*. Washington, D.C.: Government Printing Office.
- McKenzie, T. L., & Lounsbury, M. A. (2014). The pill not taken: Revisiting physical education teacher effectiveness in a public health context. *Research Quarterly for Exercise and Sport*, 85, 287-292. DOI: 10.1080/02701367.2014.931203

- National Education Association of the United States. (1932). Addresses and Proceedings of the Annual Meeting. *The Association*, 70, 464.
- National Education Association of the United States, Department of Secondary Teachers. (1935). Secondary education. *National Education Association of the United States*, 4-5, 288.
- Panton, J.H. (1945). *Modern teaching practice and technique*. Longmans, Green and Co.
- Pennsylvania Department of Public Instruction. (1941). Official Bulletin. *Pennsylvania public instruction*, 9-10, 10.
- Pennsylvania State Education Association. (1930). Official Bulletin. *Pennsylvania School Journal*, 78, 12.
- Public Health Agency of Canada. (2018). A Common Vision for Increasing Physical Activity and Reducing Sedentary Living in Canada: Let's Get Moving. Retrieved from the Government of Canada at <https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/healthy-living/lets-get-moving/pub-eng.pdf>
- Smithey, W.R., University of Virginia, & Virginia Committee for Research in Secondary Education. (1927). Secondary education in Virginia. *University Extension Division*, 23-27, 67.
- Tremblay, M., & Lloyd, M. (2010). Physical literacy measurement—The missing piece. *Physical and Health Education Journal*, 76(1), 26-30.
- Wall, J., & Murray, N. (1994). *Children and movement: Physical education in the elementary school*. Dubuque, IA: William C. Brown Co.
- Whitehead, M. (2001). The concept of physical literacy. *European Journal of Physical Education*, 6, 127-138. DOI: 10.1080/1740898010060205
- Whitehead, M. (2010). *Physical literacy: Throughout the lifecourse*. New York, NY: Routledge.
- World Health Organization. (2018). *Global action plan on physical activity 2018–2030: More active people for a healthier world*. Retrieved from <http://www.who.int/ncds/prevention/physical-activity/global-action-plan-2018-2030/en/>