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Physical Literacy is…? What Teachers Really Know

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Abstract

Physical education has been identified as an opportune way to develop physical literacy, and Whitehead (2010) notes the crucial role teachers play in developing and fostering physical literacy. Due to the critical role that teachers play in the development of physical literacy it is important that they understand this concept. The purpose of this study was to explore what teachers of physical education understand about physical literacy. Teachers (N=106) in a Canadian province completed a questionnaire regarding their understanding of physical literacy and its implementation in physical education. Findings indicate a wide range of comprehension and confusion about how physical literacy is incorporated into instruction in the physical education curriculum. Ultimately, further work is required to alleviate confusion surrounding physical literacy so teachers can effectively help children develop physical literacy to be active over the lifespan.

Keywords: physical literacy, physical education, teachers, specialists, generalists

Résumé

L'éducation physique est reconnue comme une discipline appropriée pour développer la littératie physique et Whitehead (2010) affirme que les enseignants ont un rôle crucial dans le développement de cette littératie. Étant donné ce rôle crucial des enseignants, il est important qu'ils / ells comprennent ce concept. Le but de cette étude est d'explorer la compréhension de ce concept démontrée par des enseignants d'éducation physique. Des enseignants (n=106) d'une province canadienne ont complété un questionnaire portant sur leur compréhension de la littératie physique et sur sa concrétisation en éducation physique. Les résultats révèlent des compréhensions très diverses et de la confusion sur les façons d'incorporer la littératie physique dans l'enseignement de l'éducation physique. Ultimement, un travail important sera exigé pour dissiper la confusion à propos du concept pour que les enseignants puissent aider les enfants à développer leur littératie physique et ainsi être actifs tout au long de leur vie.

Mots clés: littératie physique; education physique; enseignants specialistes; enseignants généralistes.

Introduction

Due to children's high levels of sedentary behavior, low levels of physical activity, and subsequently low levels of fitness, physical literacy has been identified as a possible approach to help children become more active (ParticipACTION, 2015). At present, little is known about teachers' understanding of physical literacy. Several authors (e.g. Stanec & Murray-Orr, 2011; Tristani & Fraser- Thomas, 2014) suggest that physical educators do not fully understand physical literacy. For example, Stanec and Murray-Orr (2011) found that classroom teachers considered themselves to be physically literate, however when the teachers were asked to elaborate, their explanations of physical literacy suggested that in fact they did not have a thorough comprehension of the concept. In addition, Stanec and Murray- Orr (2011) found that the teachers struggled to integrate physical literacy into the daily routine of the classroom. The intent of this current study was to learn about what practicing teachers in one Canadian province know and understand about the concept of physical literacy. In Canada, physical literacy is considered the foundation for lifelong participation in physical activity (CS4L, 2014). While Margaret Whitehead may have renewed the focus on physical literacy in the UK (2001, 2007, 2010), Canada has become one of the leading countries in the development of the concept. Physical literacy is about developing the whole person; mind and body as one. While the psychomotor learning domain is a widely recognized element of physical literacy, additional learning domains (affective and cognitive) are also represented in the concept, along with a behavioral element (ParticipACTION et al., 2015). It is clear that physical literacy is much more than physical competency.

Physical literacy is a concept that transcends multiple sectors and perhaps because of this, several definitions of the concept exist. Whitehead (2001, 2007, 2010) and the International Physical Literacy Association (IPLA) collaborated to create the 2015 Canadian Physical Literacy Consensus Statement that debuted at the International Physical Literacy Conference in Vancouver. This consensus statement identified four equally valued elements of physical literacy: (a) motivation and confidence, (b) physical competence, (c) knowledge and understanding, and (d) engagement in physical activities for life (ParticipACTION et al., 2015). All of these aspects must be considered when developing physical literacy, regardless of the context.

In Canada's sport sector, the Canadian Sport for Life organization defines an individual who has high physical literacy as one who can perform a wide variety of fundamental motor skills allowing them to participate in a range of activities, can interact competently and confidently with a range of environments, and values physical activity (CS4L, 2014; Higgs, Balyi, & Way, 2008). If an individual has a broad range of skills in and on water and air, as well as ice, snow, and land, these skills may increase opportunities to be more physically active in the present and over the lifespan (CS4L, 2014). While physical literacy is critical for people of all ages, Canadian Sport for Life (2014) identifies childhood as the optimum time to develop physical literacy. If a child is able to run, jump, and manipulate objects, they may be able to participate in a number of activities, regardless of age; conversely, if children are not physically literate, they may drop out of activity (Higgs et al., 2008).

Physical literacy has also been defined in the field of education, more specifically for the subject of physical education. The United Nations Educational, Scientific and Cultural Organization identifies physical literacy as the foundation of physical education programs

(UNESCO, 2015). PHE Canada (N.D.) has its own definition of the concept: "Individuals who are physically literate move with competence and confidence in a wide variety of multiple environments that benefit the healthy development of the whole person". Because the PHE definition was created specifically for physical education, this physical literacy definition was used in this study. Several facets of physical literacy are incorporated within provincial curricula, and many provincial physical education curricula in Canada emphasize that students should become physically literate as a result of the curriculum being taught effectively (i.e. achieving grade specific standards, expectations, or outcomes) (Mandigo, Francis, Lodewyk, & Lopez, 2009). Though the curricula state that physical literacy is an expected outcome of physical education, this outcome can only be attained if teachers are teaching the curriculum effectively.

Due to the important role that schools play in the overall development of children, it is vital for teachers of physical education to understand physical literacy. If teachers possess knowledge in physical literacy, they can maximize opportunities to engage students in diverse ways. Because physical education programs can reach virtually all children, teachers play a pivotal role in not only developing physical literacy in their students, but also promoting awareness and understanding of the concept with other teachers, administration, and parents. To do so teachers need to be aware of the complexities of physical literacy. Physical literacy involves aspects from three learning domains: cognitive, affective, and psychomotor (Graham, Holt/Hale & Parker, 2013).

To fully comprehend physical literacy may be a difficult task, as some teachers may not be as well versed in physical education knowledge and material as others. Many studies have investigated the impact of specialists and generalists instructing physical education (Constantinides, Montalvo, & Silverman, 2013; Sallis et al., 1997; Wright, 2004). In Canada, a specialist physical education teacher refers to those teachers who have been certified to teach physical education (Stanec & Murray- Orr, 2011). Across Canada, physical education specialists appear more frequently at the high school level. These teachers have a degree in Physical Education or a similar topic (i.e. Kinesiology) in combination or along with an Education degree. Conversely, generalist teachers are typically elementary classroom teachers responsible for the instruction of all subjects. Previous research has indicated some generalist teachers are not adequately equipped to teach the physical education curriculum (Decorby, Halas, Dixon, Wintrup, & Janzen, 2005). The lack of generalist knowledge and confidence appears to be a common theme in physical education research (Cothran, Kulinna, & Garn, 2010; Jin, 2013; Morgan & Bourke, 2008). As only 39% of Canadian schools are reported to employ physical education specialists, the fact that generalist teachers may not be well equipped to teach physical education is concerning (Cameron, Craig, Coles, & Cragg, 2003). As both specialists and generalists teach physical education, all teachers have the potential to affect the physical literacy of their students.

The outcome of physical education is to develop physically literate individuals, and teachers play a key role in developing and fostering physical literacy (Whitehead, 2010). However, much confusion surrounds exactly how teachers should integrate physical literacy within their physical education classes.

Due to teachers' potential confusion with regards to physical literacy and physical education, it is important to understand what these teachers know and believe about the concept of physical literacy. A key question remains: what do teachers of physical education (both specialist and generalist) understand about physical literacy? This study provides some insight on teachers' understanding of the concept, how they implement physical literacy in their

gymnasiums, and what supports teachers require to develop their knowledge and understanding of physical literacy.

Method

An exploratory questionnaire using mixed methods was administered to teachers of physical education in the province of Saskatchewan through the provincial physical education organization and word of mouth.

Questionnaire

The authors of the manuscript, whose research specialization is curricular-based physical education, developed a questionnaire using the Fluid Survey platform. The authors have an extensive background in both physical education pedagogy and research. A knowledgeable panel of current physical educators reviewed the questionnaire to ensure content validity. After the review, modifications were made to the initial draft to ensure questions were clear and additional options to questions were added. Once changes were made the questionnaire was sent back to the panel for review and a pre-testing of the questionnaire design. After discussion and pre-testing the questionnaire in full, the panel came to a general consensus of the questionnaire's content validity. Once the panel came to a consensus, the questionnaire was administered.

The questionnaire (Appendix A) was composed of demographic information and both closed and open-ended questions about the concept of physical literacy. The questionnaire's structure was informed by other questionnaires and interview guides in the physical education literature (Morgan & Hansen, 2007; Stanec & Murray-Orr, 2011). Demographic information included gender, age, years of teaching, grades currently teaching, educational background, and the teachers' current teaching assignment.

Open-ended questions inquired about the definition of physical literacy, how the participants' instruction developed physical literacy in their physical education classes, how the provincial curriculum addressed physical literacy, whether parents spoke to them about physical literacy, and community initiatives. Closed-ended questions asked about resources and barriers participants faced when developing physical literacy in physical education classes. Participants also had the opportunity to pose questions regarding physical literacy.

After answering the first question "What does physical literacy mean to you?" participants were shown the PHE Canada definition of physical literacy (PHE Canada, N.D.). This was to ensure participants had a comprehensive and accurate definition of physical literacy in order to complete the remainder of the survey.

Participants

The questionnaire was designed for teachers of physical education in the province of Saskatchewan. This included administrators, specialists, generalists, high school teachers, and elementary teachers. The respondents included those who currently taught physical education and those who had previously taught physical education. By allowing a broader participant pool, researchers anticipated a wider base of knowledge from all of those who could develop or support physical literacy in schools.

Participant Demographics

Fifty-one individuals identified as male and 55 individuals identified as female. With regards to years of teaching experience, the largest group of participants (34%) reported teaching for zero to five years, with the next largest group of participants (19%) having taught for 26 or more years. The remaining participants had between eleven to twenty-five years of teaching experience. About 40% of participants taught at an elementary school level, while half of participants taught either at a high school or a combination of elementary and high school levels. For educational background, two thirds of participants had a Bachelor of Education with a Major in Physical Education. Participants could select all degrees that applied to their experience; some selected multiple degrees (i.e. B.Ed. Major in Physical Education and Bachelor of Science in Kinesiology). Participants also identified the physical education context in their school; about half of the participants in this study identified having a full-time specialist in their school.

Procedure

Following institutional ethical approval, the questionnaire was distributed through the membership and networks of the Saskatchewan Physical Education Association (SPEA). SPEA is a provincial non-profit incorporated organization that provides quality leadership, advocacy, and resources for physical education and wellness professionals (SPEA, 2015). The questionnaire was also promoted though Twitter and other social media to expand reach to teachers who were not SPEA members. The survey was live for two months.

Response Rates

Overall there were 106 valid responses out of 157 total responses. Responses with only consent (i.e. yes to consent and no demographics or questions answered), no to consent, or only demographic questions answered were excluded from the total responses thus leaving 106 valid survey responses. Of these 106 valid survey responses, 61 were 100% completed. Forty-five of the 106 responses answered the majority of questions. These 45 responses were included because they provided responses to the questions, and unanswered questions may have been an indication of a lack of knowledge and comprehension regarding the topic of physical literacy.

Data Analysis

Qualitative and quantitative data were collected in parallel, analyzed separately, and then merged (Creswell & Plano Clark, 2011). Collecting both quantitative and qualitative data brought greater insight into the research question than could be obtained by either type of data separately.

Quantitative data was entered into SPSS Version 23 and analyzed using chi-square analyses and frequency counts (Vincent & Weir, 2012). Chi-square analyses determined if a relationship existed between the teacher (specialist or generalist) and their understanding of physical literacy, and if a relationship existed between teachers' years of experience and their understanding of physical literacy. Frequency counts were used for closed-ended questions on resources and barriers.

Qualitative data was used to explore participants' knowledge of physical literacy and its relationship to physical education. Thematic analysis was conducted in an inductive manner with the data aligning into themes instead of trying to fit the data into a predetermined coding frame (Creswell, 2014, p. 195-200). Thematic analyses were completed for each response to the open-ended questions. Once data was separated by the open-ended questions from each participant,

initial codes were generated from the data. The initial codes were then used to form lower-ordered categories, which were then categorized into themes. The second author checked the responses to ensure they fell into the appropriate themes.

For the open-ended question about the definition of physical literacy, components of the PHE Canada (N.D.) definition were used to help build relationships from lower-ordered categories into themes. For example, if participants discussed mastering fundamental movement skills or performing movement skills, these initial codes would be used to form the lower-ordered category of physical competency.

Results

Though both qualitative and quantitative data were collected in parallel through the questionnaire, the two types of data were analyzed separately. The quantitative findings are presented first, followed by the qualitative findings.

Quantitative Analyses

Specialist/generalist and understanding of physical literacy. A chi-square test of independence was performed, and no relationship was found between specialist and generalist and their knowledge of physical literacy (full understanding, partial understanding, no understanding). The relationship between these variables was not significant, X^2 (2, N = 91) = .356, p = .837.

Years of teaching experience and understanding of physical literacy. A chi-square test of independence was performed and a significant relationship was found between the years of teaching experience and knowledge of physical literacy. The relationship between these variables was significant, X^2 (2, N = 104) = 8.743, p = .013. The participants with 0 to 15 years of teaching experience had a greater grasp of physical literacy than those with 16 to 30 years of experience.

Resources and barriers. When asked about the resources needed to develop physical literacy, approximately 30% of the participants selected all of the predefined options apart from "other" (lesson plans, activities, professional development, assessment tools, online resources, and video demonstrations) (Appendix A, Question 10). Ten percent of participants did not answer this question, and the remaining participants selected different combinations of the predefined options.

Participants were also asked how they accessed physical literacy resources. The following sources were independently listed, however participants could select more than one option: Physical and Health Education (PHE) Canada, the participants' school division, SPEA, and "other" (Appendix A, Question 11). Most participants selected a combination of these sources. Some participants clarified the "other" option and answers ranged from internet websites such as Growing Young Movers (N.D.), Twitter, YouTube, and SHAPE America, to speaking with colleagues and the Saskatchewan curriculum.

In addition, participants were asked about the barriers they faced in developing physical literacy in their physical education classes (Appendix A, Question 12). Participants identified the following as the top barriers with the most selected barrier appearing first: appropriate and

sufficient equipment, time to prepare to teach physical education, time for physical education classes, and school division support for physical education. The least selected barrier was that the concept of physical literacy was unclear.

Qualitative Analyses: Themes

This portion of the study refers to the data from the survey's open-ended questions (Appendix A, Questions 8-9, 13-15). The themes for each finding are grouped under the content of each open-ended question.

The definition of physical literacy. One hundred and four participants answered the question "What does physical literacy mean to you?" Participants' responses were organized into three major themes: (a) comprehensive physical literacy knowledge, (b) physical competence, and (c) literacy.

The first theme generated from this question was identified as "comprehensive physical literacy knowledge." Thirty-three participants provided responses that included several components of physical literacy: movement vocabulary, confidence and competence, valuing activity and/or movement, diversity in activities and/or environment, long term/life span, physical proficiency or competence, motivation, and development of the whole person. These components were part of or related to the PHE Canada (N.D.) definition. Participant 117's response below discusses several components of physical literacy.

> Being able to understand and demonstrate the skills and strategies necessary to physically move about our environments, in a confident and safe manner, and be able to apply similar movements in different environments. Being physically literate means you understand how your body moves and how that movement can maintain or improve your overall health.

The above response suggests a thorough understanding of the concept and was typical for responses categorized into this theme. A large difference in understanding physical literacy was observed between responses with multiple components of physical literacy identified compared to responses categorized within the second theme.

The second theme generated from the responses to the question included a focus on "physical competence." A partial understanding of the concept of physical literacy was evident in many participants' responses. About 60% of participants only spoke about the physical competence element of physical literacy. For example, participants may have only discussed the importance of fundamental movement skills, without identifying any other components of physical literacy. One participant discussed the "application of fundamental movement skills to all types of movements" (Participant 16).

A small percentage (8%) of participants showed little to no evidence of understanding the concept of physical literacy. These participants' spoke about a focus on the traditional "literacy" aspect of the term physical literacy.

> Physical literacy means working on academics, such as Math or Reading, while moving the body by balancing, or moving in various other ways at the same time. A student can walk a balance beam while looking at sight words or letters as he/she is walking and trying to balance at the same time. (Participant 84)

These responses did not match with any definition of physical literacy and responses did not include any components of physical literacy.

Daily instructional practice and the development of physical literacy in physical education.

Five themes were generated from this open-ended question about instructional practice and physical literacy. These themes included: content: the what of physical education, pedagogy: the how of physical education, affective domain development, using the curriculum, and skill transfer. The first two themes accounted for about 70% of participants and will be discussed below. The majority of participants discussed components relating to content and pedagogy. Graham et al. (2013) differentiate between content, what to teach, and pedagogy, the how to teach or the teaching process.

Fifty-four percent of participant responses fell under the first theme of "content: the what of physical education" as the major tool to help develop physical literacy during physical education. Individuals identified the use of movement vocabulary, fundamental movement skills, movement patterns, and active participation. The majority of participants indicated using a wide variety of activities and multiple environments to develop physical literacy in their classes:

> Students are exposed to a variety of activities and sports that promote balance, coordination, throwing, kicking, catching. We do a number of stations and circuits where students each day are able to participate in a number of movements. (Participant 34)

A second theme was "pedagogy: the how in physical education." Responses in this theme included the use of specific teaching models, clear concise instructions, and the use of progressions to teach skills. In addition, participants also spoke about using small-sided games, creating a safe learning environment and using feedback throughout the class. Participants frequently described the teaching strategies they used to develop physical literacy during physical education classes.

> Most of my instruction in the gym is based on high repetitions with lots of success and low levels of failure. These way students are able to gain confidence in their actions and self-teach and adjust their motions in order to be most effective. (Participant 102)

Provincial curriculum setting the stage for physical literacy development. Participants were asked if the current provincial physical education curriculum addressed physical literacy. If participants answered yes, they were asked to provide specific examples. About 60% of participants felt the provincial curriculum did address physical literacy. Three themes were generated from these responses.

The first theme was "concern about the curriculum." Numerous participants discussed that the curriculum was unclear and outdated, and in particular that the high school physical education courses were outdated. Participant 39 explained, "yes, I believe the curriculum does support physical literacy. Each grade builds on the previous one. Grade 7-9. Wellness 10 also supports [physical literacy]. However, PE 20 and 30 are outdated." Teachers, regardless of level (i.e. elementary or high school) also perceived the curriculum as quite vague:

> I believe the current Saskatchewan curriculum for physical education does address physical literacy. However, like every curriculum it can be wordy and unclear. It would be great if the curriculum was written in grade appropriate language so that it could be used as a communication tool with students and parents. (Participant 50)

A second theme related to the physical education curriculum was that the curriculum provides "basics and a baseline." Many participants conveyed that all of the aspects of physical literacy were already identified in the curriculum in one form or another. One teacher expressed the curriculum must be taught effectively to develop physical literacy:

> Yes the outcomes and indicators would definitely result in physical literacy if they were provided to students effectively and assessed properly. Assessment is a struggle when you have so little time already to get students moving. We have 3-30-minute periods each week. (Participant 42)

Participants believed that by understanding and following the curriculum, teachers would be well on their way to developing physically literate students. Participant 61 agreed that the curriculum developed physical literacy: "Yes it does. Our current curriculum was created with a PL lens and gives us plenty of opportunities to address PL in our classes." Participants valued the curriculum as a beneficial base from which to start developing physical literacy.

Lastly, a third theme emerged from the data of participants who believed the curriculum did address physical literacy. This third theme was "yearning for more." Participants desired specific things that the current curriculum did not include such as lesson plans. Even those with many years of experience discussed the need for specifics that the curriculum was lacking. A teacher with 26 years of experience mentioned, "yes, I find it [the curriculum] matches the movement vocabulary of physical literacy very well. I think it would be helpful to have some lesson plans as exemplars to give more examples and ideas." Unpacking the curriculum with professional development type of supports was another opportunity that teachers longed for. A teacher with 13 years of experience discussed needing help in learning how to teach the curriculum, "yes, I believe the current Physical Education curriculum does support physical literacy. However, the curriculum could/should be supported by more available resources/workshops."

Parents and physical literacy. When participants were asked if parents discussed physical literacy with them, 75% reported parents never mentioned physical literacy, while approximately 10% reported parents did discuss physical literacy with them. About 15% of participants did not answer this question. The participants that stated parents did talk to them about the concept frequently gave examples that did not refer to physical literacy such as: "Physical activities that will help with academics" (Participant 81).

Community initiatives developing physical literacy. Participants were asked if they were aware of any community initiatives that promoted physical literacy. Almost 40% of participants chose not to answer this question. Approximately one- quarter of the participants indicated they were not aware of any community initiatives or that their community did not have any community initiatives in place.

Some participants did identify community initiatives. About 15% of participants identified Saskatchewan *in motion* as a community initiative that promoted physical literacy. Ten percent spoke about sports promoting physical literacy. Seventeen participants (16%) either did not mention a particular community initiative or they did not provide answers applicable to the question.

Discussion

The purpose of the current study was to explore what teachers of physical education understood about the concept of physical literacy. These findings provide an exploratory snapshot of their understanding.

Research has shown that physical education specialists have higher levels of enjoyment, confidence, and knowledge in teaching physical education (Decorby et al., 2005). However, research has also shown classroom teachers can provide effective instruction in physical education with the right support (Faucette, Nugent, Sallis, & McKenzie, 2002; Sallis et al., 1997). Results from this study showed there was no significant difference between specialists and generalists and their respective understanding of physical literacy. These findings suggest that more support is needed for all kinds of teachers (i.e. both specialists and generalists) to learn about and integrate physical literacy into their physical education classes.

A significant difference was found between the participants' years of teaching experience and the understanding of the concept of physical literacy. Participants with 0 to 15 years of experience were more likely to have a full or partial understanding of physical literacy than participants with 16 to 30 years of teaching experience. This may indicate (a) that current physical education teacher education [PETE] programs are adequately preparing teachers regarding the topic of physical literacy, or perhaps teachers with less experience are attending more professional development opportunities where physical literacy education is occurring. An example of work in the area of PETE is a new Bachelor of Health and Physical Education degree specializing in Physical Literacy offered at Mount Royal University (Mount Royal, N.D.). Although teacher preparation programs may be focusing on physical literacy in physical education, continuing professional development for teachers is needed. With regards to professional development, some literature has shown that professional development for physical education teachers is lacking: few opportunities exist for physical education specific professional development or the professional development that does exist is poor (Armour & Yelling, 2004; O'Sullivan, 2006; Souza, 2015). Although we speculated above that teachers might be attending more professional development opportunities, the literature suggests otherwise. Future work is required to understand how teachers are gaining their physical literacy understanding. While teachers with less experience were more likely to have full or partial understanding of physical literacy, overall the majority of teachers who participated in this study had a partial understanding of physical literacy. Opportunities for continuing physical education specific professional development are desired by teachers (Armour & Duncombe, 2004; Stanec & Murray-Orr, 2011). While teacher preparation and professional development may be a start, both need to be fostered in order to provide maximum support for teachers.

The results also indicate there was a great range of understanding of the definition of physical literacy. This is consistent with the literature, especially considering the multiple definitions of physical literacy (Aspen Institute, 2015; CS4L, 2014; ParticipACTION, 2015; Roetert & Jefferies, 2014; Whitehead, 2010). McCaffery and Singleton (2013) discuss not only a few of the popular Canadian definitions of physical literacy, but also the issue of various sectors transitioning the philosophical underpinnings of Whitehead's definition of physical literacy into definitions without the same monist belief. The majority of the teachers in this study did not understand the concept of physical literacy. This may not have been a result of confusion over definitions, but a lack of understanding of the concept.

The creation of Canada's physical literacy consensus statement sought to help clarify discrepancies about the concept of physical literacy and provide a common definition (ParticipACTION et al., 2015). Within this definition, physical literacy is comprised of four essential elements: motivation and confidence, physical competence, knowledge and understanding, and engagement in physical activities for life (ParticipACTION et al., 2015). At the time of this study, the Canadian physical literacy consensus statement had not been created. In this current study, almost 60% of participants focused on the physical competence aspect of physical literacy. To demonstrate a comprehensive understanding of physical literacy, participants were required to identify several components of physical literacy. Only 31% of participants could clearly articulate the concept of physical literacy. This demonstrates the need to better support teachers in their understanding of physical literacy in order to impact their students' development. These results also identify the importance for all elements of physical literacy to be equally valued during instruction. By excluding the other elements of physical literacy, physical literacy narrows to become the development of fundamental motor skills.

There has also been wide debate questioning whether the term "physical literacy" is the appropriate term to be used for this concept in an educational setting (Lounsbery & McKenzie, 2015). Perhaps the term itself contributes to the misunderstanding of some teachers who have been instructed by school boards to focus on "literacy" as solely reading and writing. By promoting the concept of physical literacy, perhaps teachers will begin to expand notions about what "literacy" can include.

Similar to the previous question on the definition of physical literacy, there was a wide range of responses with regard to how instruction in physical education can develop physical literacy. The majority of participants identified the physical education lesson content as the means for developing physical literacy in their classrooms. A wide variety of activities and environments were discussed frequently in these responses. Other teachers had never considered this issue, while some spoke to different teaching models, breaking down skills, and creating a safe learning environment to build confidence and competence.

Five themes were generated through participant responses about how instruction in physical education could develop physical literacy. The themes generated from this question highlight some of the essential components of physical education: content, pedagogy, the affective domain development, curriculum, and skill transfer. All of the learning domains were identified in the responses: cognitive, psychomotor, and affective, which may suggest teachers are integrating all elements of physical literacy, but are unaware of it. While it is favorable that participants discussed these critical components of physical education, it is somewhat concerning that most participants isolated only one component, i.e. response only spoke to the theme of "content," without including other themes. Development of the whole person is a critical aspect of physical literacy (Whitehead, 2010); it is important teachers are aware that to develop physical literacy all of these components of physical education need to be involved.

Many participants identified a need for a variety of physical literacy resources. Participants desired lesson plans, activities, professional development, assessment tools, online resources and video demonstrations. While some resources are available through online resources as Active for Life (2015), PHE Canada, Growing Young Movers (N.D.), and Canadian Sport for Life, numerous participants seemed to be unaware of these resources. Conversely, when participants were asked about where they accessed physical literacy resources, many individuals identified they used the PHE Canada website, the SPEA (the provincial organization) website, their school division, and other online websites. It would appear that despite resources

existing and that participants are in fact accessing the locations where the resources are housed, participants are still at a loss for resources. Similar to the multiple definitions of physical literacy, perhaps this is due to the fact that there is no "gold standard" for physical literacy resources and assessments (Giblin, Collins, & Button, 2014). Despite the existence of resources, it appears as though teachers' needs for physical literacy resources are not being met.

When asked about barriers to developing physical literacy, participants identified issues that are well known within the subject of physical education, such as "time for physical education classes" and "appropriate and sufficient equipment" (Middlemass Strampel et al., 2014; O'Sullivan, 2006). A lack of opportunity for professional development was also high on the list of barriers. This was also discussed in responses noting the need for professional development.

Interestingly enough, only 10% of participants selected the "concept of physical literacy is unclear" as a barrier to developing physical literacy. This was the least selected barrier option by participants. This highlights two issues. The first being that barriers to physical education overall as a subject in school are still prevalent because the majority of choices selected by participants referred to "time for physical education classes" and "appropriate and sufficient equipment." The second relates back to confusion surrounding physical literacy as a concept. This study's results demonstrate most participants only have a partial understanding of physical literacy. Herein lies a problem. Teachers believe they have a complete understanding of physical literacy, but they are frequently missing critical elements of the concept. Development of the whole person (cognitive, affective, psychomotor, and behavioural) will be difficult to address if essential elements of physical literacy are lacking.

Although the physical education curriculum may not explicitly refer to physical literacy in the outcomes, the Saskatchewan curriculum does include a definition of physical literacy in the introduction along with facts counteracting common myths about the value of physical education (Ministry of Education, 2010, p. 8). The majority of teachers identified that all aspects of physical literacy are evident within the curriculum's outcomes and indicators. One of the difficulties with transitioning a concept such as physical literacy to the field of physical education is determining how to do so genuinely. The IPLA (2016) suggests that physical literacy is much more encompassing than the subject of physical education, however it is clear that physical education classes offer a valuable opportunity to increase the physical literacy of children and youth. More discussion is required to truly understand how the concept of physical literacy can be developed in physical education classes.

While many teachers believed the curriculum did address physical literacy, the majority felt that the physical education curriculum was also quite unclear. In particular, many high school teachers spoke about the curriculum being outdated. In addition, other issues were discussed by participants such as disconnection between elementary and high school teachers, too many non-active physical education curricular outcomes, and the curriculum being written for a specialist audience. Although resources were addressed earlier in the survey, several teachers reiterated a need for resources and instruction on how to interpret the curriculum properly.

While teachers are required to teach the provincial curriculum, they are not the only ones responsible to develop physical literacy in children [Saskatchewan *in motion*, N.D.]. Parents of students also have a responsibility to help develop physical literacy in their children. A large percent of teachers (75%) reported that parents do not speak to them about physical literacy. Parents are known to have a significant impact on their children's levels of physical activity

(Whitehead, 2010), thus it is essential parents are aware of physical literacy. One participant in this study mentioned, "most parents still don't know the phrase physical literacy and still talk only of physical activity and physical fitness." Because parents play such a prominent role, it is imperative that teachers, coaches, and recreation leaders educate and promote the importance of physical literacy to parents.

Communities also have a responsibility in developing physical literacy. Responses in this study demonstrated a lack of communication between schools and the community. Most teachers were not aware of community initiatives focused on the development of physical literacy. This may be due to the fact that communities do not have programs focusing on physical literacy development or because there is limited collaboration occurring between the community and education sectors. Saskatchewan *in motion* (N.D.) developed a model where responsibility for children's physical activity is shared between the parents, school, and community.

At the conclusion of the survey, teachers were provided with an opportunity to pose questions about physical literacy. Teachers had a wide variety of questions such as "How do I teach physical literacy?" "Isn't it just teaching physical education?" "What does it look like in my gym?" A large number of teachers wanted more information on "how to teach physical literacy in the gym" and how to assess physical literacy in their physical education classes. These questions further demonstrate the confusion around the concept of physical literacy and may also indicate that those who are currently working in schools in the province are not accessing current resources. While these questions may not be the same for all teachers in Canada, they demonstrate that in the province of Saskatchewan teachers have a strong desire to learn about physical literacy and how to develop physical literacy effectively in their students.

Limitations of the Present Study and Future Recommendations

The findings are restricted to the province of Saskatchewan. The questionnaire was designed for Saskatchewan and the questions specifically asked about the provincial curriculum and how these provincial teachers deliver physical education. Different provinces have different physical education curricula, therefore these findings may not translate to all other provinces. However, results may inform educators in other provinces about the need for education and advocacy surrounding physical literacy.

Additional limitations included the low number of generalists responding to the survey, as well as the number of valid responses. The majority of the participants identified themselves as specialists, however as aforementioned, generalist teachers instruct a large portion of physical education classes. Despite the quantitative evidence indicating no difference between specialist or generalist teachers, having a larger sample of the population may have provided a more comprehensive review of existing perceptions regarding physical literacy. Because this study was based solely on a questionnaire, it was not possible to discuss responses further with participants. Future work may benefit from the rich data collected in post-questionnaire interviews to supplement these findings.

Furthermore, it is recommended that diverse sectors work together to seamlessly support children in developing physical literacy. The lack of knowledge and possible lack of community programming identifies that more education about physical literacy is necessary on a global scale, beyond the teacher population. Parents did not use the term physical literacy, and steps need to be taken to increase awareness regarding physical literacy. Communication between the school, home, and community needs to occur for this to happen.

Some additional suggestions for future work include taking a closer look at teacher preparation programs to determine if physical literacy is being addressed effectively and to look at physical education professional development opportunities to determine if these are effective at educating about physical literacy; and if these opportunities currently exist for teachers.

Conclusions

Teachers of physical education play a critical role in the development of physical literacy in children and youth. The results of this study demonstrate that further work has to be done to ensure teachers fully comprehend the concept of physical literacy. Because physical literacy is viewed as the gateway to active participation, teachers must be cognizant of all of the facets of physical literacy (Kriellaars, 2014). Efforts are needed to help teachers increase their understanding of physical literacy so that they may then create rich, authentic physically literate experiences to develop students' physical literacy resulting in the engagement of lifelong physical activity.

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References

Active for Life. (2015). Physical Literacy. Retrieved from www.activeforlife.com

Armour, K.M., & Duncombe, R. (2004). Teachers' continuing professional development in primary physical education: lessons from present and past to inform the future. *Physical Education and Sport Pedagogy, 9*(1), 3-21, doi: 10.1080/1740898042000208098

Armour, K.M., & Yelling, M.R. (2004). Continuing professional development for experienced physical education teachers: towards effective provision. *Sport, Education and Society, 9*(1), 95-114. doi: 10.1080/1357332042000175836

Aspen Institute. (2015). *Physical literacy in the United States. A model, strategic plan, and call to action.* Retrieved from http://aspenprojectplay.rog/sites/default/files/PhysicalLiteracy_AspenInstitute.pdf

Cameron, C., Craig, C. L., Coles, C., & Cragg, S. (2003). Increasing physical activity: Encouraging physical activity through school. *Ottawa: Canadian Fitness and Lifestyle Research Institute*.

Canadian Sport for Life. (CS4L, 2014). Long-term athlete development 2.0 resource paper. Canadian Sport Centres. ISBN 0-9738274-0-8 http://canadiansportforlife.ca/sites/default/files/resources/CS4L%20Resource%20Paper.pdf

Constantinides, P., Montalvo, R., & Silverman, S. (2013). Teaching processes in elementary physical education classes taught by specialists and nonspecialists. *Teaching and Teacher Education, 36,* 68-76. doi: http://dx.doi.org/10.1016/j.tate.2013.07.004

Cothran, D.J., Kulinna, P.H., & Garn, A.C. (2010). Classroom teachers and physical activity integration. *Teaching and Teacher Education, 26,* 1381-1388.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Thousand Oaks, CA: Sage.

Decorby, K., Halas, J., Dixon, S., Wintrup, L., & Janzen, H. (2005). Classroom teachers and the challenges of delivering quality PE. *The Journal of Educational Research, 98* (4), 208-221.

Faucette, N., Nugent, P., Sallis, J.F., & McKenzie, T.L. (2002). "I'd rather chew on aluminum foil." Overcoming classroom teachers' resistance to teaching physical education. *Journal of Teaching in Physical Education,* 287-308.

Giblin, S., Collins, D., & Button, C. (2014). Physical literacy: Importance, assessment, and future directions. *Sports Medicine,* 1-8. doi: 10.1007/s40279-014-0205-7

Graham, G., Holt/Hale, S., & Parker, M. (2013). *Children moving. A reflective approach to teaching physical education* (9th ed.). New York, USA: McGraw Hill Companies.

Growing Young Movers. (N.D.). Retrieved from http://growingyoungmovers.com

Higgs, C., Balyi, I. & Way, R. (2008). *Developing physical literacy: A guide for parents of children ages 0 to 12: A supplement to Canadian sport for life.* Vancouver, Canada: Canadian Sport Centres.

International Physical Literacy Association. (IPLA; 2016, October). Why is physical literacy not just physical education? [Web log post]. Retrieved from https://www.physical-literacy.org.uk/physical-literacy-not-just-physical-education/

Jin, A. (2013). Physical education curriculum reform in China: A perspective from physical education teachers. *Physical Education and Sport Pedagogy, 18 (*1), 15-27.

Kriellaars, D. (2014, November). *Physical Literacy 101.* Workshop session presented at the Physical Literacy mini summit held by Partners for Physical Literacy, Regina, SK.

Lounsbery, M.A.F., & McKenzie, T. L. (2015). Physically literate and physically educated: A rose by any other name? *Journal of Sport and Health Science 4* (2015), 139-144. doi: http://dx.doi.org/10.1016/j.jshs.2015.02.002

Mandigo, J., Francis, N., Lodewyk, K., & Lopez, R. (2009). *Position paper physical literacy for educators*. Physical and Health Education Canada.

McCaffery, M., & Singleton, E. (2013). Why are we doing this anyway? Physical literacy, monism, and perceived physical competence for Ontario's elementary students. *Physical and Health Education Journal, 79*(3), 6-12.

Middlemass Strampel, C. M., Martin, L., Johnson, M. J., Iancu, H. D., Babineau, C., & Carpenter, J. G. (2014). Teacher perceived barriers and potential solutions to implementing daily physical activity in elementary schools. *Physical & Health Education Journal*, *80* (1), 14.

Ministry of Education. (2010). *Physical education 4.* Retrieved from https://www.edonline.sk.ca/bbcswebdav/library/curricula/English/Physical_Education/Physical_Education_4_2010.pdf

Morgan, P., & Bourke, S. (2008). Non-specialist teachers' confidence to teach PE: the nature and influence of personal school experiences in PE. *Physical Education and Sport Pedagogy, 13*(1), 1-29. doi: 10.1080/17408980701345550

Morgan, P., & Hansen, V. (2007). Recommendations to improve primary school physical education: Classroom teachers' perspective. *The Journal of Educational Research, 101* (2), 99-108. doi: 10.3200/JOER.101.2.99-112

Mount Royal. (N.D.). Retrieved from http://www.mtroyal.ca/ProgramsCourses/FacultiesSchoolsCentres/HealthCommunityEducation/Programs/PhysicalLiteracy/index.htm

O'Sullivan, M. (2006). Professional lives of Irish physical education teachers: stories of resilience, respect and resignation. *Physical Education and Sport Pedagogy, 11*(3), 265-284. doi: 10.1080/17408980600986314

ParticipACTION. (2015). The Biggest Risk is Keeping Kids Indoors. The 2015 ParticipACTION Report Card on Physical Activity for Children and Youth. Toronto: ParticipACTION.

ParticipACTION, Sport for Life Society, Healthy Active Living and Obesity Research Group, Physical and Health Education Canada, Canadian Parks and Recreation Association, & Ontario Society of Physical Activity Promoters in Public Health. (2015). Canada's physical literacy consensus statement. Retrieved from http://www.physicalliteracy.ca/sites/default/files/Consensus-Handout-EN-WEB_1.pdf

PHE Canada. (N.D.). Physical literacy. Retrieved from http://www.phecanada.ca/programs/physical-literacy

Roetert, E.P., & Jefferies, S.C. (2014). Embracing physical literacy. *Journal of Physical Education, Recreation and Dance, 85* (8), 38-40.

Sallis, J., McKenzie, T., Alcaraz, J., Kolody, B., Faucette, N., & Hovell, M. (1997). The effects of a 2-year physical education program (SPARK) on physical activity and fitness in elementary school students. *American Journal of Public Health, 87* (8), 1328-1334.

Saskatchewan *in motion*. (N.D.). 30-30-30. Retrieved from http://www.saskatchewaninmotion.ca/get-involved/30-30-30

SPEA. (2015). Saskatchewan physical education association. Retrieved from http://www.speaonline.ca

Stanec, A.D., & Murray-Orr, A. (2011). Elementary generalists' perceptions of integrating physical literacy into their classrooms and collaborating with physical education specialists. *PHEnex Journal, 3* (1), 1-18.

Tristani, L., & Fraser-Thomas, J. (2014). Exploring physical literacy from the perspectives of new teachers: "Something that was talked about but never really understood." [Abstract] *Journal of Physical Activity and Health, 11* (Suppl 1), S126-S198.

UNESCO. (2015). *Quality physical education: Guidelines for policy makers*. Retrieved from http://www.phecanada.ca/sites/default/files/unesco_qpe.pdf

Vincent, W.J., & Weir, J.P. (2012). *Statistics in kinesiology.* (4th ed.). Champaign, IL: Human Kinetics.

Whitehead, M. (2001). The concept of physical literacy. *European Journal of Physical Education, 6* (2), 127-138.

Whitehead, M. (2007). Physical literacy. Philosophical considerations in relation to the development of self, universality and propositional knowledge. *Sport Ethics and Philosophy. 1* (3), 281-298.

Whitehead, M.E. (2010) (1st ed.) *Physical literacy: Throughout the lifecourse*. London: Routledge.

Wright, L.J.M. (2004). Preserving the value of happiness in primary school physical education. *Physical Education and Sport Pedagogy, 9*(2), 149-163. doi: 10.1080/1740898042000294967

Appendix A: Physical Literacy Questionnaire

1. I have read and understand the description of the research study provided above. I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I agree to participate in the study described above, understanding that I may withdraw my consent prior to the dissemination of the results. Please print this consent form for your records. I consent to participate in the following survey.

2. Gender

3. Age

4. Years of Teaching

5. What grade (s) are you currently teaching?

6. Educational background
a. B.Ed. (major in PE)
b. B.Ed. (minor in PE)
c. B.Ed. (no emphasis in PE)
d. B.Sc. Kin or BPE
e. PHD
f. Other, please specify

7. Please describe your current school PE context by indicating who is responsible for the instruction of PE programs.
a. Classroom Teacher
b. Full time specialist
c. Part-time specialist
d. External provider
e. Other, please specify

8. KNOWLEDGE: What does physical literacy mean to you?

9. PRACTICE: Keeping PHE Canada's definition of physical literacy in mind, how does your instruction develop physical literacy in the gymnasium during physical education?

10. RESOURCES: What resources or supports do you need to effectively develop physical literacy in your students? [Select all that apply]
a. Lesson Plans
b. Activities
c. PD Workshops
d. Assessment tools
e. Online resources
f. Video demonstrations
g. Other, please specify

11. Where do you get these resources/support?
a. PHE Canada Website
b. School division
c. SPEA
d. Other, please specify

12. BARRIERS: What barriers do you face in developing physical literacy in your students?
a. The concept of physical literacy is unclear
b. access to facilities (school & community)
c. time for physical education classes
d. time to prepare to teach physical education
e. opportunities for professional development
f. support to attend physical education conferences, such as SPEA
g. resources (print, web, etc.)
h. appropriate & sufficient equipment
i. school division support for physical education
j. other, please specify

13. CURRICULUM: Does the current Physical Education curriculum for Saskatchewan address physical literacy? And if so, how?

14. PARENTS: Do parents discuss physical literacy with you?
a. If you answered yes to the above question, what do the parents discuss?

15. COMMUNITY: Are you aware of community initiatives that promote physical literacy?

16. QUESTIONS: What questions do you have regarding physical literacy?