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Chapter 13: Physical Literacy

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Introduction

The purpose of this chapter is to address the contents of teaching health and physical education through the lens of 'physical literacy'. The focus is programmatic in that there is an emphasis on questioning ways in which the physical activities that comprise the curricula of health and physical education are best described, categorized, sequenced and connected. The lens of physical literacy allows one to look closely at the so-called 'building blocks' of physical skill acquisition and movement competency to discern an expanded activity basis for the claim of physical literacy development and the contributions of health and physical education to the wider realm of literacy development, particularly towards a model of critical thinking and inclusivity.

This chapter begins by exploring the historical roots of physical literacy, its links to movement education and its antecedents. Often mistaken as a new concept, physical literacy has significant historical meaning and appreciable relevance for contemporary health and physical education, sport and recreation programming. Such an exploration points toward a conception of physical literacy requiring the development of a repertoire of locomotions, manipulations and body management actions that can be channeled into the skill progressions of various games and sports, gymnastic disciplines and dance forms. Yet, in addition to having a grounding in fundamental movement skills and a mastery of activity-specific skills, it is maintained that the physically literate person has also developed the requisite physiological capacities and motor abilities (function), the contextualized capabilities (form), expressive possibilities (feeling) and motivation to

engage in a wide range of activity disciplines that give meaning to the daily pursuit of a healthy and active lifestyle. Such an expanded conception of physical literacy aligns with and at the same time expands Physical and Health Education (PHE) Canada's recommendation that a physical educator attend to the development of the whole child which includes dimensions of fitness and skill development, cognition, and affect (Francis, Johnson, Lloyd, Robinson & Sheehan, 2011).

This broadened conception of physical literacy takes us into the second section of the chapter where consideration is given to the wider contexts of literacy and literacy education. Physical literacy is presented as one of the multiliteracies with which one should be concerned as educators of children and youth and as representing a distinctive modality of teaching and learning that is attuned to a social vision of diversity and inclusion.

The third part of this chapter addresses the complex notion of assessing physical literacy. An exemplar is provided as a template for an educator to tailor a specific rubric for any mainstream or alternative activity that coincides with the multi-dimensions of physical literacy and literacy at large.

The overarching intention in this chapter is to thus expand the dominant Canadian rendition of physical literacy as 'fundamental movement and sport skills' in keeping with the vision of Physical and Health Education (PHE) Canada which, in their 2009 position paper (Mandigo, Francis, Lodewyk, & Lopez, 2009), acknowledged that physical literacy within education settings must differ from its uptake in sport contexts, i.e., Canadian Sport for Life (CS4L). Additionally, this chapter creates a conceptual pathway to connect physical literacy to notions of becoming literate across the school curriculum, specifically

to multiliteracies theory which advocates for the development of a social future of interactive and proactive inclusivity.

This chapter concludes by leaving the reader with some challenges and curricular responses to realizing more fully an expanded literacy ambition for physical educators. Such challenges pertain to: the confinement of health and physical education to just the teaching of "fundamental movement and sport skills"; the reduction of these skills to decontextualized sport techniques; and the compartmentalization of activity domains that become teaching and learning ends in themselves. These challenges prompt the physical educator to consider how physical literacy can be realized as a way of reading and responding to others in a variety of environments that include the contexts of games, sports, gymnastics and dance, yet also extend into less bounded, openly public spaces and natural environments.

1. The Concept of Physical Literacy, its history and contemporary relevance.

Physical Literacy Defined

Physical Literacy, a concept put forward by a British physical education and phenomenological scholar Margaret Whitehead (2010; 2007; 2005; 2004; 2001), is at the heart of health and physical education curriculum revision in Canada (Ministry of Education, 2010; PHE Canada, 2010; Higgs, 2010) and elsewhere (Whitehead, 2010). Based on her doctoral research exploring meaningful existence and embodiment in physical education (Whitehead, 1990), Whitehead sought to disrupt the predominance of Cartesian dualism, which is a way of thinking and acting in which the body is regarded as a mere mechanistic entity (e.g., a thing to be worked out, drilled through repetitive

practice, or molded into shape) and the mind is understood as will, cognitions and emotions that can be addressed separately from the body. As such, Whitehead explained physical literacy through the following overarching characteristics:

> …a physically literate individual… moves with poise, economy and confidence in a wide variety of physically challenging situations. Furthermore the individual is perceptive in "reading" all aspects of the physical environment, anticipating movement needs or possibilities and responding appropriately to these, with intelligence and imagination. (Whitehead, 2001, p. 3)

Whitehead thus defined the concept of physical literacy through an embodied perspective that was informed by her doctoral readings of existential philosophers such as Merleau-Ponty and Sartre and cast it as a "monist view of the human condition" (Whitehead, 2005, p. 3) in which there is no mind-from-body separation. By introducing the concept of physical literacy in this way, Whitehead hoped that students might acquire a "literacy of the motile aspects of the human embodied dimension" (2004, p. 4), a capacity with which we are all endowed, and one that has the potential to make a significant contribution to one's quality of life.

As a beginning health and physical education teacher you might be wondering what significance physical literacy and its philosophic underpinnings has on your emergent practice. Perhaps you are planning to include "mind-body exercise" (Gavin and McBrearty, 2006), such as yoga, in your health and physical education program and are quite looking forward to also including segments on fitness, dance as well as games and sports. Perhaps you are also thinking about gymnastics, circus arts, flow arts, martial arts, as well as a range of alternative environment activities such as kayaking, climbing,

skiing, swimming, diving and slack-lining. This broadened curricular scope of health and physical education would certainly be a step in the direction of physical literacy. Yet Whitehead suggests something more is involved. The adoption of the term means that we do not simply focus on the type of content that is taught in health and physical education but broaden attention to consider the holistic physical, mental and emotional development of the physically active child. She explains:

> As appropriate to each individual's endowment, physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the lifecourse. (Whitehead, 2010, p. 5)

Curriculum learning outcomes aligned with the concept of physical literacy have thus shifted away from what has previously been associated with what it means to become physically educated, which typically entails the mastery of a prescribed set of sport, dance and gymnastic skills (Whitehead, 2004, p. 5), to that of becoming 'physically literate' in terms of the comprehension, critical mindedness, confidence and competence to be physically healthy and active. In health and physical education curricular terms, to teach towards the intended outcome of becoming physically literate one cannot simply expect to base health and physical education classes on mindless drills, activities and games to keep students active. Rather, a physical educator needs to approach the teaching of physical activity with the goal of developing (a) knowledge and understanding, (b) critical and creative thinking, (c) communication through various modes as well as (d) the ability to apply knowledge and skills from one context to the next (Mandigo, Francis, Lodewyk, & Lopez, 2009). Curricular goals of becoming physically literate have the

potential to shift the subject of physical education away from "a prescribed activity-centred performance model to a person-centred participation model" (Whitehead, 2004, p. 5) where students develop the knowledge, skills and attitudes to become active and healthy throughout the lifespan. Figure 1., entitled *Physical Literacy for Life: A Model for Physical Education*, depicts such a desired curriculum outcome for Canadian physical educators. Note the particular emphasis on the cognitive, movement and affective dimensions of physical literacy as well as the desired outcome to help students become active for life.

Insert Figure 1. here (see separate attachment)

Figure 1. Physical Literacy for Life: A Model for Physical Education.

Note to editor, please also print this: *N.B. this figure has been developed by Physical & Health Education Canada and reprinted with permission. For more information, visit www.phecanada.ca

The Historical Emergence of Physical Literacy: The Origin of Movement Education

Although the present-day understanding and prominence of the term 'physical literacy' can be attributed to Margaret Whitehead (2001; 2010), the concept can be traced back to Francois Delsarte in the mid to late 1800s. Delsarte's life work was dedicated to the systematic reading of bodily postures, positions and gestures that carry emotional meaning (Shawn, 1968, p.16). His approach to analyzing movement was a precursor to the notation and field of movement education articulated by Rudolf Laban (1948) many years later. Note that gesture, in the Delsartian sense, extends beyond what might be

categorized as ‘non-verbal’ communication in acts such as pointing, beckoning, shushing or waving. Gesture can be more broadly understood as any form of physical expression from any part of one’s body such as the subtle meaning one might gather in reading facial expressions to the obvious gesticulations of arms and hands. Imagine for example, how one might discern variations on a smile, e.g., an exploding smile generated from the surprise visit of a loved one entering a room compared to that of a strained smile put on if the visitor was someone not overly liked.

Discerning such physical expressions of movement are not restricted to reading the emotions of another person. Movement educator and phenomenologist, Maxine Sheets-Johnstone (1999), details how one might turn attention to reading the timing, amplitude and tensions visible in any movement from the lifting of one’s hand to a walk down the street. While it might seem strange to consider the importance of reading such subtle details of nuanced physical expression, particularly as a beginning health and physical education teacher who is keen to get children active and moving, consider what might be communicated in terms of sensing and responding to a child’s postures, positions, gestures and expressions of emotional wellbeing. An energetic hand, shooting skyward, waving back and forth sends a different message than the child who pauses and holds a hand halfway up when a question is posed. Similarly, a child walking across the gym to an activity station with broad, open shoulders and a bounce in her stride sends a very different message than a child walking at a snail pace with eyes downcast.
More than a reading of emotional expression in terms of the degree to which a child is ready and receptive to engage in physical activity, acquiring such a keen sense of the timing, amplitude and tension in movement also plays into the way one might approach

the refinement of movement quality. For example, imagine students engaged in a passing activity. While there might be some motor skill criteria and performance outcomes that you wish your students to consider, such as ways of holding the ball, body position, wind-up, point of release, and target measures, consider also the possibilities of reading the many, individual physical expressions that emerge along the way (as discussed in Lloyd & Smith, 2010; Lloyd, 2011a) and how the students themselves may be encouraged to become literate in reading such expressions. Adaptations may thus be made in regards to the way one passes a ball to a peer, in terms of softening, quickening, or amplifying the motions of the wind-up and ball release so that there is awareness of the partner's receptivity and greater chance of a catch being made.

Worthy of note is that such an empathetic performance of throwing a ball in this other-directed way intertwines the cognitive, movement and affective dimensions of physical literacy that form the basis of the model used today (revisit Figure 1.). Additionally, such a bodily reading and responsiveness of movement expression ties in with the Laban-informed movement concepts (e.g., effort and relationships) that are at the heart of health and physical education curricula (e.g., Manitoba Education, 2000, p. 27; Government of Saskatchewan, 2010, p. 27). In the province of Ontario, for example, Movement Competence is contextualized in terms of fundamental movement skills (e.g., stability, locomotion, manipulation), movement concepts (e.g., body awareness, effort, spatial awareness, and relationships), and strategies (e.g., tactics). Movement Competence, thus contextualized, is one of the three inter-related strands that form the health and physical education curriculum. In fact, the development of Movement Competence might be considered to be the foundation of the curriculum as it provides a

means and a pathway to approach Active Living and Healthy Living. Accordingly, it is no surprise that the curriculum states that the "development of fundamental movement skills in association with the application of movement concepts and principles provides the basic foundation for physical literacy" (Ontario Ministry of Education, 2010, p. 23). Perhaps after reviewing some of the relevant history that has to do with the emergence of physical literacy, you may better understand the connection between reading physical postures, positions, gestures and expressions in the nuanced, lived process of acquiring fundamental movement skills and situating that reading within the development of health and physical education curriculum and pedagogy (*N.B. For further reading about the philosophical history of physical literacy, see Lloyd, 2011b*).

Fundamental Movement Skills: Metaphorical Building Blocks

Teaching children fundamental movement skills based on principles of stability, locomotion and manipulation has become the central focus of developing physical literacy within and beyond the realm of health and physical education. Physical and Health Education (PHE) Canada (a non-profit organization that advocates for quality, daily health and physical education) as well as 'Canadian Sport for Life' (CS4L), a governing body that aims to improve the quality of sport and recreation in Canada, have developed books, programs and resources that align the acquisition of fundamental movement skills with physical literacy to the extent that the terms are interchangeable (e.g. Francis, Johnson, Lloyd, Robinson, & Sheehan, 2011; CS4L, 2011). According to CS4L, "Fundamental movement and sport skills are the basic building blocks of physical literacy."

The "building block" metaphor, also common within the curricular uptake of physical literacy (e.g., PHE Canada, 2010, 2008; Higgs, 2010), is based on the premise that if you can learn the fundamentals of movement you can then be prepared to participate in a wide variety of activities, just as one who learns to read may then be prepared to read a variety of books in various genres, such as mystery, romance, science fiction, detective and crime stories, along with newspapers, song lyrics, emails, blogs and other digital media forms. The process of becoming physically literate has thus been described as the acquisition of foundational skills such as "walking, running, jumping, climbing, skipping, catching and throwing …[which] provide a sound basis upon which all refined sport skills are based" (Francis, et al., 2011, p.14). The premise is that if you can 'run' you will have the building block required to take part in games that are based on running such as soccer, baseball, volleyball, track and field, squash, badminton, rugby and tennis. If you can 'throw' you will have the foundational skill to take part in activities that involve throwing such as baseball, softball, cricket, bowling, darts, and shot put.

Whitehead (2010) reframes the building block, fundamental movement skill metaphor as a "bank of movement competences" (p. 53). Accordingly, the more one has in the bank, the more one will respond to a wide variety of situations in a way that is automatic to the individual. A physically literate individual who kicks a ball within a game, for example, no longer has to stop and think to perform the movement. Rather, the motile act of "kicking" exists within a repertoire of movement possibilities. Whitehead (2010) refers to such movement patterns as one's vocabulary and relates the process of becoming fluent in such action to the Piagetian notion of assimilation and accommodation.

But the link between teaching fundamental movement skills in isolation and the skillful use of such movements within the complexity of game play is not necessarily a particularly strong one. In fact, the transposition of a rehearsed, repetitive drill of passing a ball may be, as advocates of the Teaching Games for Understanding (TGfU) approach assert (e.g., Butler & McCahan, 2005), quite problematic. Passes within a game (or the execution of other such fundamental movement skills) may depart from what is depicted in mechanistic breakdowns of the ideal form. The use of Fundamental Movement Skill curricular supporting technologies such as Dartfish (2011), a software program that illustrates mechanistic breakdowns of fundamental movements and skills as well as other visual charts that depict the ideal phases of movement in various sport contexts through the visual representation of movement (i.e., CS4L, 2011), may therefore be viewed with critical awareness and understanding. One such caution is the likely tendency to focus on the externalization of movement rather than the expressive, dare we say 'mindful,' qualities of movement on which the philosophy of physical literacy is based. Just as the historical perspective of physical literacy drew attention to the reading of the timing, amplitude and tension that give recognizable quality to particular movements, one might also consider a game reading ability (Mandigo & Holt, 2004) that can be acquired as players come to understand not just the tactics but also the characteristics as well as unique patterns of play that constitute the flow of games and sports (Lloyd & Smith, 2010).

Becoming Physically Literate

The proposition that "fundamental movement and sport skills" are the

prerequisites of "physical literacy" may be likened, in reading and writing, to the phonetics and phonemics of word awareness that are connected, in terms of meaning making, to the grammatical and syntactical awareness of phrases and sentences and, indeed, to the semiotics (i.e., the inherent meanings) of paragraphs, passages, and full texts. To not just 'read' a game, but also to be able to move such that one is able to 'write' and 'author' the passages of play requires a requisite movement and sport skills 'vocabulary'; yet this proficiency level also requires a knowledge of, and feel for, the game or sport and its constitutive features that come as a result of a broader health and physical education than one focused just on the skills and tactics of games and sports. A closer look into the definition of physical literacy that is guiding present initiatives in health and physical education is thus warranted: "Individuals who are physical literate move with competence in a wide variety of physical activities" (Francis et al., 2011, p. 2), Still, one might question if there will be a departure from the dominant health and physical education model of isolated sport techniques (Kirk, 2010). Notice that within the sport literature the 'wide variety of physical activities' is certainly conceptually associated and limited to acquiring sport skills.

> Physical Literacy is the mastering of fundamental movement skills and fundamental sport skills that permit a child to read their environment and make appropriate decisions, allowing them [sic] to move confidently and with control in a wide range of physical activity situations. It supports long-term participation and performance to the best of one's ability. (Canadian Sport for Life, 2011)

The term "sport literacy" is used elsewhere to describe health and physical education programs that are based exclusively on the "physical, cultural, personal, social and

cognitive experience" of games and sports (Drummond and Pill, 2007, p. 173). But this "sport literacy," while better acknowledging the dominant activity focus of health and physical education, sidesteps the issue concerning the extent to which a focus on "fundamental movement skills and fundamental sport skills" fosters long-term athlete development as well as the more generalized abilities, capabilities and capacities involved in living a fully healthy, physically active life.

These twin aspirations for the physically literate person, namely sporting excellence and active and healthy living, require, it seems, a more generalized terminology than the 'knowledge, skills and attitudes' or what PHE Canada categories as 'cognition, movement, affect' related to particular games and sports. After all, a fully healthy, physically active life is not necessarily a product of games and sports, nor is it necessarily expressed in these forms of healthy, physical activity over a person's lifespan. What is needed is a broader conceptualization of the requisite features of physical literacy that is inclusive of "fundamental movement skills and fundamental sport skills" but not confined to them. Accordingly, three key indicators of physical literacy are now presented in terms of Functional Capacities, Contextualized Capabilities, and Expressive Possibilities. These categories differ from PHE Canada's conceptual pillars of Cognition, Movement and Affect as depicted in Figure 1., *Physical Literacy for Life: A Model for Physical Education.* Such categories are introduced as they are more congruent with the language and philosophy of physical literacy as put forward by its very articulate proponent Margaret Whitehead. Not at complete odds, however, a conceptual mapping of the two categorizations reveals essences of connectedness. Functional Capacities (which will soon be explained) align most strongly with what PHE Canada categorizes as

Movement. Contextualized Capabilities map onto both categories of Cognition and Movement as addressing thoughtful movement formed from a responsive relationship to the environment. Expressive Possibilities align most strongly with PHE Canada's Affect category.

Functional Capacities provide more fundamental building blocks of physical literacy than just the foundational movement skills of walking, running, jumping, throwing, kicking, striking, catching and trapping. They indicate the physiological and kinesiological prerequisites of moving in certain ways with particular body parts and "must surely include capacities such as balance, coordination, flexibility, agility, control, precision, strength, power, endurance and the ability to move at different speeds – that is explosively, right though to sustaining movement over a long period of time" (Whitehead, 2001). Certain of these capacities and abilities are addressed in the "ABCs – agility, balance, coordination and speed" of physical literacy (CS4L, 2011). Yet it seems that a more extensive alphabet of movement needs to be considered as required for, say, throwing and catching objects of varying weights, textures, sizes and forms. The capacity for physical literacy rests on health-related fitness parameters of body mass, cardiovascular endurance, muscle strength, and flexibility coupled with the skill-related capacities of agility, balance, coordination and speed.

Contextualized capabilities refer to the wide range of motions and movement sequences that can be performed on the basis of the above functional capacities. Such capabilities may be initially thought of as the fundamental movement skills – those of locomotion, stability and manipulation. These skills can be reduced to techniques of, say, jumping for distance and landing to preserve that distance, balancing in a handstand and

then rolling forwards, or throwing a chest pass with a basketball. Yet a skillful action rests essentially on the capability of executing a motion or movement sequence in a particular activity context. It is, after all, the particular configuration and composition of the long jump pit that determines the nature of the leap and landing. The mat surface's resilience invites the handstand and cushions the roll. The movements of players on the basketball court suggest the expediency of the chest pass. Yet, whereas the contextual references for movement capabilities have traditionally involved just the constructed environments of gymnasia, studios, indoor and outdoor courts and playing fields, the contextualized capabilities of physical literacy include a much wider range of activity settings. As Whitehead points out: Children need to learn how to engage with the "phenomena of the natural world" such as "gravity, gradient, fixed and moving objects, and water" (Whitehead, 2001). The motions of such engagement need also to be applied to the activities that take place in constructed environments, and increasingly so, those environments in which the activities are technologically mediated, from the use of simple tools and equipment to digital media. This array of contexts then suggests not simply the application of fundamental movement skills to particular games and sports, gymnastics, dance and alternative environment pursuits, but also an exploration of movement capabilities that may well be constitutive of newly created activity forms. The incorporation of meditative and martial arts (e.g. Ragoonaden, Cherkowski and Berg, 2012) along with circus arts and flow arts (e.g. Price, 2012) in health and physical education programs is indicative of the range of contextualized capabilities that can be developed. (Note that further exemplification of this point will be provided in a subsequent section of the chapter addressing the health and physical education innovation

of ‘JungleSport.’)

Expressive possibilities refer to what are often called communication skills. As well as communicating verbally, with the explicitness of words and the nuance of voice intonation, visual imagery and sound mixture, we also communicate with our bodies, through facial expressions, hand gestures, and body positions. In specific activity contexts we communicate very physically through the effort qualities of the movements enacted, the spatial arrangements and relationships created in the passages of play, and in the body shapes taken to convey specific intention. According to Whitehead:

> ...a physically literate individual should be able to deploy his/her embodied dimension to achieve intentions that focus on self expression. We are manifest in the world in bodily form and through our embodiment we demonstrate/ display/ communicate many aspects of our personality. This aspect of physical literacy could relate to situations in which self-presentation and non-verbal communication are central. These situations could also extend to those related to art forms such as dance and drama. (Whitehead, 2001)

Curricula of health and physical education tend to interpret such self expression in conceptual and cognitive terms, suggesting that it is based on an explicit awareness of what the body does, where it moves, how it moves, and with whom (e.g. Ontario Ministry of Education, 2010, p. 24). One might consider, however, that this communicative competence involves a more primary, visceral sense of the body and its ‘expressive possibilities’ based on the movement exploration of breathing, balancing, timing and touch. By exploring the qualities of kinesthetic sensibility through breathing activities such as running, swimming and yoga, balancing activities in gymnastics, circus arts and

climbing, timing activities in dance, juggling and hooping, and touch activities in martial arts, contact sports and horse riding, one learns to physically 'read' the overt intentions of others and to communicate one's own.

Drawing attention to the capacities, capabilities, and possibilities for movement certainly challenges interpretations of physical literacy that reduce it to an acquisition of fundamental sport skills. In fact, when taken together, educating students in a way that nurtures such intrinsic inclinations to move, since we are born into movement not still-born as Sheets-Johnstone (1999) asserts, becoming physically literate then carries the potential to evoke a flow experience. Flow refers to the state of mindfulness, or thoughtful action, to which we can aspire. It is not just an action state of mind as Csikszentmihalyi (2000) affirms, but also an interactive facility that is responsive, from one moment to the next, to changing environmental conditions and the dynamics of engaging with and against others (Lloyd & Smith, 2006; Lloyd, 2011a; Lloyd, 2011b). At times it is going with the flow; other times it means going against it. Also, flow consciousness entails being receptive to the ebbs and flows, the bursts, rushes, explosions of energy as well as the wanings, crashes and softenings of energetic personal, group and team expression (Lloyd & Smith, 2010).

Framing physical literacy in a way that leads a student towards a state of flow consciousness aligns with Whitehead's (2001) characterization of the physically literate person as "a mover with a rich bank of established movement responses acquired through interacting with a wide range of challenging environments." (p. 7). Such a mover, as Whitehead contends, does not have to "stop to think"; on the contrary, a physically literate person is able to think in and through the flow of motion. Thus, a

person who has acquired a rich repertoire of functional capacities, contextualized capabilities and expressive possibilities is afforded "intelligent movement interaction with the world through perceptive reading of the environment, astute application of existing responses, effected alongside newly created responses where needed" (Whitehead, 2001, p. 8). This kind of 'reading,' 'comprehension' and 'composition' is premised on the high maintenance of physiological and biomechanical functions, the wide exploration of activity forms, and the ever deepening of kinesthetic sensibility. Flow consciousness is therefore a desired state, a sense of being in the moment, in the zone, fully alive and awake to respond with movement fluency.

To organize and simplify this expanded conception of physical literacy that is more aligned with Whitehead's intention for introducing the term, the categories of movement Function (i.e., functional capacities), Form (i.e., contextualized capabilities), Feeling (i.e., expressive possibilities) and Flow (i.e., the intrinsic motivational state of flow consciousness) that are constitutive of the 'Function-to-Flow' or F2F model (as developed by Lloyd, 2011c; Lloyd & Smith, 2009) are offered. Physical literacy conceptualized through the dimensions of the F2F model thus suggests an unlimited capacity for movement receptivity and creativity. But with this unlimited capacity, a caveat is worth mentioning: At no point in time can one claim to be fully physically literate. In other words, becoming physically literate, in this manifold sense, is an aspiration rather than ever being a fully-fledged achievement. In the following chapter section, further clarification is given to how *becoming* rather then *being* physically literate makes sense by looking through some wider lenses of literacy development.

2. Connecting Physical Literacy to Literacy Across the Curriculum

Mandigo, Francis and Lodewyk (2007) state that:

> Traditionally, sport and physical education has focused upon the "physical" development of individuals. Although this is critical and central to professional practices, the "physical" is only one half of the term. To truly understand the term "physical literacy," a clear understanding of literacy is needed. (p. 5)

Mandigo et. al. provide a number of literacy definitions worth considering and outline the components of literacy as involving "knowledge and understanding" of content, "critical and creative thinking skills," "communication in various forms," and the "application of knowledge and skills to make connections within and between various contexts" (p. 5). Understanding notions of literacy in this broadened sense has cross-curricular implications, beyond the subject of health and physical education.

What a physical educator should know, especially one who wishes to advocate for the physical literacy rights of the whole child, is how the emergence of 'physical literacy' in curriculum documents and resources potentially connects to recent considerations of "multiliteracies," "multimodalities" and "social futures" that have been articulated by literacy theorists. Becoming literate in the subject of health and physical education is not an isolated phenomenon. Becoming literate in subjects such as mathematics, science, business studies, and the arts, is a commonplace assumption and thus a progressive learning outcome that is informed by a multidisciplinary conception of literacy.

Literacy in a multiliteracy sense thus transcends disciplinary knowledge within the subject of English Language Arts. No longer limited to "restrictive print- and language-based notions of literacy" (Jewitt, 2008, p. 248), school literacy, although heavily

critiqued for perpetuating such associations, is challenged by recent curricular revisions. The Ontario Ministry of Education, for example, describes literacy as:

> the ability to use language and images in rich and varied forms to read, write, listen, view, represent, and think critically about ideas. It involves the capacity to access, manage, and evaluate information; to think imaginatively and analytically; and to communicate thoughts and ideas effectively. Literacy includes critical thinking and reasoning to solve problems and make decisions related to issues of fairness, equity, and social justice. Literacy connects individuals and communities and is an essential tool for personal growth and active participation in a cohesive, democratic society (Ontario Ministry of Education, 2008a, p.6)

While such a broad range of literacy genres exists, making sense of what it means to become literate in subjects other than Language Arts is still a challenge task. A recent study conducted by two teacher educators in Ontario Bachelor of Education programs, for example, describes their personal struggles with making sense of what it means to become literate in their respective subject areas of science and health and physical education (Fletcher & Bullock, 2012). Their in-depth self-study revealed that they were able to apply the multiliteracy theory put forward by the New London Group (1996) to make sense of what literacy meant in a broad sense, specifically the New London Group's sociocultural pedagogical stance which describes the attentiveness to the multiple ways in which meaning is communicated (Cope and Kalantzis, 2000), yet they felt this realization was not effectively passed on to their students, namely, future teachers in Ontario schools. Literacy for their students did not extend to principles of social justice, inclusion or ways of thinking beyond their specific subjects as they noted

"it became clear that they had not grasped how to teach for scientific literacy across the grades and across topics…. [the concept of] physical literacy was somewhat similar […] with a distinct focus on content and less on the pedagogies that could promote physical literacy" (Fletcher & Bullock, 2012, p. 31).

Fletcher and Bullock's (2012) recent study into multidisciplinary conceptions of literacy is particularly relevant as it points to the obvious notion that not enough curricular support is offered to teacher educators as well as teachers in schools to make sense of the plethora of emergent literacy genres within the school curriculum. For this reason, conceptual connections that connect physical literacy to cross-curricular conceptions of literacy, and specifically what is inferred by recent thinking around multiliteracies and multimodalities, are briefly introduced in this chapter.

Multiliteracies

In the mid-nineties a group of international scholars came together to consider what was happening in literacy education. Known as the "New London Group," these scholars coined the term 'multiliteracies' which transformed school subjects from discrete compartments of knowledge to particular literacies. As explained by Rowsell, Kosnik & Beck (2008).

> The New London Group see many types of expression and communication as literacies, whether formal or informal; spoken, gestured, written, or graphic; official or unofficial; correct or 'incorrect'; and so on. Among school subjects, they view science, mathematics, history, art, music, etc. as literacies. To a degree, this broad concept of literacy has been around for some time. Terms such as computer literacy and mathematical literacy are now common. However, the

> New London Group have broadened the definition of literacy much further and provided systematic justification for doing so. (p. 112)

If physical literacy is understood as one of the multiliteracies that help us make sense of our 'lifeworlds', from classrooms to playgrounds, music studios, art rooms, computer labs, work offices and public places, the ways we make sense of the contexts or 'lifeworlds' which we inhabit extend far beyond notions of literacy that are captured in print material or the acquisition of sport skills. The process of becoming physical literate thus attends not only to the motor skills, movement concepts, principles and strategies needed to play a game or sport, but also to the skills of personal and social responsibility and, in fact, to the critical thinking skills that enable us to understand the wider significance of the time and effort invested. One might therefore better appreciate the "increasing complexity and interrelationship of different modes of meaning" (Cope & Kalanzis, 2000, p. 25), particularly where these modalities show the interconnection of physical and other literacies.

Multimodality

The concept of multimodality is associated with multiliteracy in referring to the various ways or modes that communicate meaning. Such a concept is very much connected to core of what it means to become physically literate as it certainly broadens linguistic modes to include:

> Visual Meanings (images, page layouts, screen formats); Audio Meanings (music sound effects); Gestural Meanings (body language, sensuality); Spatial Meanings (the meanings of environmental spaces, architectural spaces); and Multimodal Meanings. Of the modes of meaning, the Multimodal is the most significant, as it

> relates the other modes in quite remarkable dynamic relationships. (Cope & Kalanzis, 2000, p. 28)

There is something significantly 'multimodal' to physical literacy insofar as movement provides the grammar and syntax of all meaning-making to a greater of lesser extent. The grammar of movement relates to movement education's vocabulary, movement phrases, and the gerunds, prepositions and creations of movement sentences. Yet the grammar of movement is not just the ability to 'parse' (understand) meaning within any one context of action; it also pertains to the metalanguage (i.e., symbolic notions of language) terms of posture, position, gestural and expressive action, interaction, object of reference, order, style and facility that allow for shifting between different codes of movement, different forms, disciplines and cultures of physical activity. Games and sports are then *literally* different from dance forms, gymnastics, martial arts, circus and flow arts, not just in the most obviously visible ways, but also in terms of the distinctive ways they utilize the metalanguage of movement proficiency. It is, furthermore, the facility of play with, and interplay between, various styles of pursuing movement competency that produces invention, whether in the form of new games, new dance forms, circus and flow arts creations, and in the hybridizations of movement and digital technologies.

This potential of physical literacy requires that one look a little critically at current definitions and see where the potential multimodality of becoming fully physically literate has been underappreciated. One needs look no farther than the literacy worlds of the children and youth we teach. These worlds are highly technologically-mediated. They are characterized by sophisticated visual imagery mixed with gestural communication. The media with which these children and youth are proficient, from

Kinect-Xbox to Smartphone, provide clear evidence of a multimodality that appears to be missing when activities are compartmentalized in physical education programs. Conversely, what multimodal physical awareness might be tapped into if foot juggling, hacky sack, Tae Kwon Do and kickboxing movements along with the regular motions of soccer are included? What multimodal spatial, visual, audio and gestural awareness might be developed if physical literacy were the result of playing across the conventional bounds of games, sports, gymnastics, dance, and the alternative environment and arts-referenced movement disciplines? Such a line of inquiry provides further insight and possibility for what it might mean to move "in a wide variety of physical activities in multiple environments," which is a central component of PHE Canada's definition of physical literacy (as accessed 2012 via http://www.phecanada.ca/programs/physical-literacy/what-physical-literacy).

Inclusion

Inclusion, a third component of cross-curricular notions of literacy, speaks to a social vision that has great significance for physical education along with each of the other subjects taught in schools. As Cope and Kalanzis (2000) point out: "An authentically democratic new vision of schools must include a vision of meaningful success for all" (pp. 12, 13). The basis of this vision lies in the recognition of the multiplying and hybridizing ways of making, communicating and receiving meaning. What is learned is no longer confined to particular regions, taught as particularly preferred activities, in standardized ways. Cope and Kalanzis explain:

Local diversity and global connectedness mean not only that there can be no

> standard; they also mean that the most important skill students need to learn is to negotiate regional, ethnic, or class-based dialects; variations in register that occur according to social context; hybrid cross-cultural discourses; the code switching often to be found within a text among different languages, dialects or registers; different, visual and iconic meanings; and variations in the gestural relationships among people, language and material objects. (p. 14)

The multiplication of lifeworlds and their overlapping edges now require "an epistemology of pluralism that provides access without people having to erase or leave behind different subjectivities" (p. 18). This "pluralized notion of literacy" (Jewitt, 2008, p. 255) "sets out to redesign the social futures of young people across boundaries of difference" (p. 245). In schools this means giving due attention to the different literacies, not privileging written and oral forms over the visual, tactile and kinesthetic forms, and provoking a critical literacy "focusing on issues related to fairness, equity and social justice (Ontario Ministry of Education, 2010, p. 62).

Critical literacy is an essential part of the lens of inclusion in physical education. What activity selections advantage some children over others in terms of prior learning, family and community support for participation, and reflection in dominant cultural images? What kinds of instruction and criteria of assessment practices benefit some children over others? What functional capacities, contextualized capabilities, expressive possibilities and even modes of flow consciousness are privileged in physical education? These are some of the questions we need to consider when delivering physical education programs.

One can thus come to appreciate the multiliterate, multimodal and inclusive

ambitions of physical literacy. From the "physical" side there is great potential to explore more widely and deeply the development of movement competency. Yet this competency is not an end in itself; rather, it is the means of better understanding one's place in the world and one's connection to others who may be quite different in their activity preferences, their capacities, capabilities, expressions and engagements with us. From the "literacy" side, then, we see the intrinsic connection of physical education practices with the wider practices of literacy in a multicultural, multilingual world comprised of diverse and interconnected lifeworlds.

3. Assessing Physical Literacy: An Exemplar

Assessing the process of becoming physically literate may be quite daunting when considerations are taken of its roots in existentialism and links to multiliteracy theories. Several tools have emerged that facilitate the assessment of physical literacy in Canada, yet each tool in existence to date focuses on a certain aspect of physical literacy while neglecting others.

An Overview of Canadian Physical Literacy Assessment Tools

The Canadian Assessment of Physical Literacy (CAPL) tool, for example, developed by Marc Tremblay and his research team at the Children's Hospital of Eastern Ontario (CHEO) tests physical literacy in four domains: motor skills, physical activity behaviours, physical fitness, and knowledge of healthy living behaviors (Tremblay & Lloyd, 2010). While such a test is of tremendous value as it is the first cross-Canada initiative for Physical Literacy assessment, it is important to note that it is skewed towards an exercise physiology conceptual underpinning, e.g., it does not assess the

dimension of 'expressive possibilities' that conceptually link to notions of multiliteracies, multimodalities and inclusion. Nor does the CAPL link to health and physical education Canadian curriculum documents.

Another helpful tool for assessing physical literacy was developed by Dr. Dean Kriellars, a professor in the School of Medical Rehabilitation at the University of Manitoba. He coined the "Physical Literacy Assessment in Youth" (PLAY) program, recognized by Canadian Sport of Life (CS4L), in order to help students, athletes, parents and coaches discern the breadth and frequency of physical activities in which youth are engaged. Again, and similar to the CAPL, it falls short of assessing the dimension of expressive possibilities – what might be communicated in and through motion as well as learning goals for physical literacy as articulated in Canadian curriculum documents.

While PHE Canada provides a checklist for an educator to teach in a way that promotes physical literacy on their website (www.phecanada.ca), e.g., considerations for planning, the environment, instruction, and professionalism, at present there is no assessment tool available. Worthy of mention, however, is that PHE Canada is in the process of developing a physical literacy assessment tool that is in the pilot phase of development. It will be called the *Passport for Life* program and will offer curriculum-connected tools to assess a) fitness skills, b) movement skills, c) living skills and d) active participation.

Teacher Perceptions of Becoming Physically Literate

A close examination of existing and emerging assessments for physical literacy indicate the breadth and complexity inherent in the term. To facilitate an initial

assessment of physical literacy, one that may be used for formative self or teacher assessment, an exemplar that has been researched in Ontario schools will be provided. This exemplar intertwines the dimensions posited in PHE Canada's 2009 position paper (Mandigo, Francis, Lodewyk, & Lopez, 2009) as well as the Ontario Health and Physical Education (2010) curriculum, namely (a) knowledge and understanding, (b) critical and creative thinking, (c) communication through various modes and (d) the ability to apply knowledge and skills from one context. In terms of the depicting the four levels of progression, the dimensions of the F2F model (Lloyd, 2011c; Lloyd & Smith, 2009) are also drawn upon, namely: functional capacities (Function - level 1), contextualized capabilities (Form - level 2), expressive possibilities (Feeling - level 3), and flow consciousness (Flow - level 4).

Such a tool helps teachers depart from the dominant tendency to assess fundamental sport skills in isolation from their game contexts. David Kirk (2010) describes this dominant approach to pedagogy and assessment as the "physical education-as-sport-technique" paradigm. He is careful not to use the term 'skill' as he contends that assessing a movement in isolation, i.e., outside of its authentic context removes notions of critical, communicative and creative thinking. Accordingly, if an educator wishes to assess physical literacy in a way that situates the strategically thinking learner in a multicultural, multilingual world, it is paramount that teachers no longer limit their assessments to isolated sport techniques indicative of the sport education model (Gurvitch & Metzler, 2010) and think they are teaching students to become fully and fluidly physically literate.

Recall that definitions of physical literacy (i.e., Whitehead, 2001, Whitehead,

2010; PHE Canada, 2009) refer to the premise that a physically literate individual is posed to move in a "wide variety" of physically challenging situations. The uptake of this premise within assessment practices infers that teachers should be prepared to include and assess activities that fall outside of the traditional sport skill/technique model. A likely block to the possibilities inherent within curricular reform based on the concept of physical literacy, however, is the challenge for teachers to step outside of the dominant "physical-education-as-sport-technique" paradigm articulated by David Kirk (2010), and go beyond assessment practices limited to techniques associated with familiar sports such as basketball, volleyball, and soccer. This is not to say health and physical education programs are not expanding in terms of activities to which students are exposed beyond games and sports (Metlzer, 2005). What is missing, though, is a conceptual framework for teachers and students alike to make sense of how they may become physically literate in what might be considered alternative physical activity contexts such as climbing or even hula-hooping.

To give a sense of how teachers may begin to assess the broad dimensions of physical literacy, the following example shows how one might assess an alternative physical activity. This example comes from a climbing-based, JungleSport phenomenological study (*as detailed in Lloyd, 2012*) that was situated within five Ontario schools. During the first year of the three-year study when initial interviews and observations of the alternative activity program were conducted with five teachers who taught health and physical education to grades 1, 5, 7, 8 and 9 respectively, a consensus was determined with regards to assessing climbing. They all included the JungleSport climbing program to provide an even the playing field in terms of offering opportunities

for “non athletic” students to shine and build confidence, yet not one of them assessed their students beyond basic levels of participation. When asked, however, each teacher was interested in contributing to the development of an assessment tool which linked climbing to the four quadrants of physical literacy as detailed by PHE Canada (Mandigo, Francis, Lodewyk, & Lopez, 2009) and the Ontario Health and Physical Education curriculum. A climbing-specific achievement chart was thus developed as a direct result of the observations and interviews with participating teachers and students (Lloyd, 2012). Note that the F2F model served to delineate the progressive levels of the learner, i.e., level 1 (Function), level 2 (Form), level 3 (Feeling) and level 4 (Flow).

Insert Figure 2. Here

This Function-to-Flow Achievement chart, Figure 2., was then provided to teachers in the second year of the JungleSport study for feedback and suggestions for improvement. A grade nine teacher commented:

> *A lot of teachers use JungleSport as a participation activity. And this chart kind of brings the thinking and all of the different skills they bring to it to the forefront. So, until you came last year, it was just a fun activity the kids did. I didn't really think of it any other way then. They had fun, they were active. Whereas now, this tool is putting a different spin on it.*

As a way for an educator to assess the plethora of alternative activities that students wish to experience today from slack-line balancing to twirling bo sticks, one might keep the outer template of the above achievement chart and devise questions and

levels from basic function to fluid and flowing movement, in relation to the quadrants of physical literacy: knowledge, thinking & inquiry, communication, and adaptation. Such an approach to assessment will certainly provide a context for stepping outside of the "physical-education-as-sport-technique" paradigm (Kirk, 2010).

Student Perceptions of Becoming Physically Literate

In addition to the creation of an assessment chart which features the various dimensions of becoming physically literate as depicted in Figure 2, notions of promoting multiliteracies and modalities were also introduced within the second year of the SSHRC-funded JungleSport study. Prior to visiting each school, the primary researcher and lead author of this chapter was able to coordinate meetings between teachers of science, language arts, drama, and health and physical education, in three different intermediate schools in the Ottawa-Gatineau region. What emerged from these meetings were a series of several interdisciplinary and multiliteracy learning activities that pertained to the process of becoming physically literate in and through climbing, namely: a) the watching of climbing documentaries, b) reading and acting out excerpts from stories about climbing expeditions, c) Prusik knot tying associated with fixed line climbs, d) creative writing and social networking through a private Wiki (what they refer to in their interviews as Blogging), and e) participating in the experience of climbing itself. Student comments from focus group interviews gathered reveal their experiences and perceptions of being involved in multimodal, multiliteracy activities. Notice how their interview excerpts pick up the dimension of 'expressive possibilities', the typically marginalized dimension of physical literacy, as well as notions of creative and critical thinking:

- *the rock climbing was really cool and neat… for science it really helped us to see the real world and how real rock climbers feel when they climb the rocks. For the phys ed part, it was really fun because we get to challenge ourselves, we get to stay fit and we get to work our lower and upper body. For the English it was really fun because we got to share our opinions on the blogs and we got to learn, how to use a blog and stuff.*
- *I thought that doing the blogs really helped the climbing because you can share your experiences with other people and they can relate to you to and you can also use links from the other world to relate to like, pictures and stuff. Pictures of mountains and rocks and you can really relate to that. And you can comment on other peoples blogs so that can really help too.*
- *I thought that the blog was a good idea because you got to write how you felt about climbing and other people could relate and comment on what they thought. And, yeah. I gave some people comments, like advice and stuff. And I got some comments saying 'good job for making it to the top' and 'oh, you must have a good partner who kept encouraging you', and stuff like that.*
- *I think it helps because some people were a little afraid to say what is on their minds and it's easier to say it on their blog. And other people could help them out with advice.*

Insights shared by these students speak positively to the emergence of interdisciplinary and multiliterate understandings. Mention of improvements in fitness, connections to others and the natural world as well as overall boosts of self-esteem are but some of the positive results that emerged from the various ways students were encouraged to express

themselves and articulate their experiences. Graphics such as the F2F Interdisciplinary Model shown in Figure 2 and catering to the climbing context provide teachers and students alike with a way of conceptualizing the learning process beyond Kirk's (2010) defined paradigm of 'physical education-as-sport-techniques.' In sharing such a graphic as well as excerpts of this study, it is hoped that broadened conceptions of assessing physical literacy may emerge within other alternative activities as well as within the teaching of traditional games, sports, gymnastics and dance. It is also hoped that the concept of becoming physically literate may expand beyond the subject of Health and Physical Education and become a significant contender in multiliteracy movements across the school curricula.

Almost fifty years ago Ted Shawn, the renowned dance choreographer and performer, made an appeal for a physical literacy focus in health and physical education. He wrote:

> I hope the day comes when all children, from their first start in the primary grades, learn to use human movement as a language equally and along with their learning to communicate by speech and by writing. We would then have in a few generations a physically 'literate' adult population; for today, in spite of 'physical education' (which confines itself largely to teaching athletic sports) we have mostly physical illiteracy -- only one in a million can communicate and read communications through gesture..." (Shawn, 1965, pp. 89, 90).

Many years later Margaret Whitehead (2001) pressed the case for physical literacy.

> ...the overarching characteristics of a physically literate individual are that the person moves with poise, economy and confidence in a wide variety of physically

> challenging situations. Furthermore the individual is perceptive in 'reading' all aspects of the physical environment, anticipating movement needs or possibilities and responding appropriately to these, with intelligence and imagination. (p.3)

We now see widespread adoption in Canada and elsewhere of this term 'physical literacy.' Yet, it remains questionable to what extent the term is consistent with what is understood about literacy in general, multiliteracies, and indeed about the functions, forms, feelings and flows of physicality that comprises the domain of activities and practices in health and physical education.

The JungleSport study provides evidence of an emergent sense of physical literacy that includes not only 'reading' the environment, but also creating meaning for oneself, and communicating that meaning within the specific activity context and more broadly in the context of other literacies. In this way we can begin to see physical literacy as being a process of becoming versed in movement, in and across the boundaries of activities that comprise the health and physical education curriculum, and a process of becoming versed through movement in and across the boundaries of other literacies.

4. Questions for Discussion and Reflection

a. How can physical literacy be addressed within (and beyond) the prevailing 'physical education-as-sport-technique' (Kirk, 2010) paradigm, i.e., lessons based on the teaching of fundamental movements skills in isolation?

b. What issues of curriculum planning and provision (timetabling, staffing, coordinating 'cross-curricular' multimodal literacy projects etc.) need to be addressed in order to fulfill the physical literacy promise?

c. What are the benefits and limitations of conceptualizing physical literacy as a fundamental movement skill 'building block'?

d. How would you assess physical literacy in a health and physical education lesson?

e. How would you assess physical literacy beyond the health and physical education context?

f. What are your perceptions of curriculum revision based on the concept of physical literacy? What will stay the same? What will change?

g. What have you learned about the concept of physical literacy that will change the way you plan, teach and/or assess your lessons?

5. Case Studies

Timid Toby: Toby is a grade seven boy who has never liked health and physical education class. He is not a 'sports' person in the traditional sense and does not like the way he feels in most activities his teacher employs such as volleyball. When everyone stops to look at him serve, he freezes and worries about how his serve will affect his team's score. It is not that he lacks the coordination to connect with a manipulative, since he taught himself to juggle some years ago and has now become quite artful with clubs, hoops, and even knives. His juggling has led to an interest in bo sticks, buugeng, and fire poi. Jason seems like a loner at school, yet he has set up a blog about juggling and tweets with a wide net of flow artists around the world.

Questions:

1. What are the implications that the curriculum goal of becoming physically literate have for students like Timid Toby?

2. In what ways might Toby become physically literate with a volleyball beyond the socially constructed constraints of a volleyball game?
3. Can health and physical education programs connect with students whose activity interests lie outside the present curricula of games and sports, artistic gymnastics, and social dance?
4. How would physical literacy apply to students like Toby whose activity interests are represented and communicated via digital media?

Helen the Hockey Star: Helen plays hockey most days of the week. Her goal is to make it in the Canadian Women's Hockey League (CWHL) and to her credit she is gaining the attention of some scouts. Health and physical education is her favorite subject. It makes her feel good and in some ways she exudes a persona that she 'rules the roost'. After receiving a mark of a B in physical literacy on her interim report card, she is not only puzzled but also angry. She is by far the most talented student from a fundamental movement skill perspective, in fact, she is the best in the class.

Questions:

1. Why might Helen have received a low mark?
2. What components of physical literacy will you assess in your lessons, units plans and cumulative marks? (clue: consider the dimensions of physical literacy)
3. What would you say to Helen's parents when they share their concerns about her mark in physical literacy during parent-teacher interview night?

Sarine has the soccer moves: Sarine arrived in Canada with her family as refugees. She is placed in grade eight, but doesn't speak English and works daily with Marina, a language support teacher. Marina observes that the health and physical education class is the one place where Sarine seems to understand quite well what is going on. This week her class has started soccer, with drills of dribbling, passing and shooting, and a mini-game at the end of the period. Sarine stands out, displaying soccer skills that are far superior to those of her classmates.

Questions:

1. How might Sarine's soccer abilities provide a basis for learning activities with which she is not familiar?
2. What might Marina, her teacher, do to bring Sarine's skills and knowledge of soccer into the classroom lessons?

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