Applied Physical Literacy in an Urban High School

by

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Abstract

The objective of this research was to propose a theoretical framework based on the literature that supports the growth of students' physical literacy in physical education. A review of literature revealed the clear gap between theory and practice for physical literacy in the school setting. Existing theoretical literature was used to develop a framework for praxis intended for teacher use to infuse physical literacy into their physical education programs. The framework was piloted in a large urban high school and revised based on practice. This bounded case study revealed the complexities of moving each student forward on their physical literacy journey. Key to the Physical Literacy Praxis (PLP) framework is a trained educator who has a deep understanding of 'whole-child' education, and physical literacy. The trained educator needs to embody all components of physical literacy and provide the appropriate environment and opportunities for students to move towards mastery and independence. There is the need for all four domains of physical literacy to live in a Physical Education program of studies. Pedagogical approaches determined by the trained educator should be evidence-informed, focused on the whole child and must consider the developmental level, gender, experience, knowledge and backgrounds of students. A student's embodiment of physical literacy is nurtured by meaningful experiences in physical education and other movement related contexts, opportunities to feel empowered, developing and maintaining a positive self-concept, and a deep understanding and value of movement.

Preface

This thesis is an original work by Andrew James Morgan. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Applied Physical Literacy in an Urban High School", No. Pro00063915, May 12, 2017.

The research conducted for this thesis was a partnership between me and Professor Doug Gleddie at the University of Alberta. Chapter 3 showcases the Physical Literacy Praxis (PLP) Framework designed by Dr. Gleddie. The data analysis in chapter 4 and concluding analysis in chapter 5 are my original work, as well as the literature review in chapter 2. A revised version of Chapter 3 has now been published as D. L. Gleddie, and A. J. Morgan, "Physical literacy praxis: A theoretical framework for physical education," in the UNESCO journal titled "PROSPECTS - Comparative Journal of Curriculum, Learning, and Assessment". I was responsible for the data collection and analysis as well as the manuscript composition. Dr. Doug Gleddie was the supervisory author and the primary designer of the concept of the PLP Framework.

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Finally, I would like to thank my wonderful family, particularly my beautiful wife Tannis, who has stuck by my side throughout my journey - allowing me the freedom to complete the research and writing during a busy time in our lives. This thesis is also dedicated to my two children Gavin and Annabel, who I hope will continue to embrace a love of learning and find the joy in movement. I love you both very much.

TABLE OF CONTENTS

Chapter 1: Introduction

Background

Physical Literacy is a term Margaret Whitehead began to use during research in the late 1980s, and her work is largely responsible for providing the concept its current representation, arguing, "physical literacy was essential to a complete experience of human life" (Whitehead, 2001, p.127). However, the term was used as early as 1930 in educational journals in the United States and Britain as a metaphor that invited comparison with language literacy (Jurbala, 2015). Its growth in recent popularity particularly in the fields of education, physical activity, and sport, has led to a variety of interpretations and tailored definitions of the concept (Haydn-Davies, 2005; Lloyd, Colley & Tremblay 2010; Lloyd & Tremblay 2010; Mandigo et al. 2009; Maude, 2001; National Summit on Physical Education, 2005; Penney & Chandler, 2000; Spengler, 2014; Sport Canada, 2008; Whitehead, 2001, 2007) with researchers continuing to debate aspects of what has become a widely contested theory (Bryant et al, 2016, Cairney & Clark, 2016, Jurbala, 2015). Despite this tension, educational organizations and some researchers from around the world have argued that physical literacy should be given the same educational value and similar status as literacy and numeracy (Bryant et al, 2017; Delaney et al. 2008; Kriellaars, 2017; Mandigo et al. 2009; Tremblay, 2012; Schools and Physical Activity Task and Finish Group, 2013). There are also many organizations, research groups and governments currently promoting physical literacy interventions around the world, often using adopted definitions to meet the needs of their stakeholders (Edwards et al., 2018; Jubala, 2015Keegan, Keegan & Daley et al. 2013)

The concept itself is developed from a philosophical study of monism, existentialism, and phenomenology (Whitehead, 2001, 2007, 2010) and was introduced with the intention of disrupting pedagogical practices in physical education that treat the body as a mere machine (Lloyd, 2016). One of the motivations behind the development of physical literacy is to identify the significance of our embodied dimension and physical activity in human life as we know it (Whitehead, 2010). Our embodied capability should be seen as an important human potential, one of many key capabilities that can be nurtured via our interactions with the world. Whitehead's conceptualization suggests that individuals who are physically literate move with competence and confidence in a wide variety of physical activities in multiple environments that benefit the healthy development of the whole person (Mandigo et al., 2009). What is also critical to this conceptualization is that individuals have the motivation, knowledge and understanding to take responsibility for maintaining such purposeful physical pursuits across their lifetime (Canadian Sport for Life, 2015; Castelli et al., 2015; MacDonald, 2015; Roetert & Jefferies, 2014; Roetert & MacDonald, 2015; Whitehead, 2001). The literature conveys physical literacy as an inspirational tool for clarifying the value of purposeful physical pursuits in enriching people's lives and enhancing the quality of living well (Whitehead & Almond 2014). Whitehead's definition is important in understanding how the concept of physical literacy is likely to surface as a result of students' learning experiences throughout their years of formal educational instruction. Researchers from across the globe have deconstructed physical literacy to varying degrees and have provided a range of considerations for practicing educators and policy makers (Dudley et al. 2017). These considerations have resulted in rich discourse at various levels of education across Canada, but questions remain around its value and position within the field of physical education (Corbin 2016; Giblin et al., 2014; Guerrero, 2015;

Lounsbery & MacKenzie 2015; Lundvall, 2016; Murdoch & Whitehead, 2013; Rainer & Davies, 2013; Sprake & Walker, 2015) its effective implementation and operationalization (Bryant et al. 2016; Chen, 2015; Dudley, 2015; Ennis, 2016; Hastie & Wallhead, 2015; Bryant et al. 2016; Robinson & Randall, 2016; Sun, 2016) and teacher efficacy (Cantrell & Hughes, 2008; Castelli et al.2015; Harvey & Pill, 2018; Lynch 2016; Roetert & MacDonald, 2015).

The emergence of physical literacy as a construct over roughly the past two decades has resulted in it becoming part of the discourse among physical education educators (Lundvall 2016). In Canada, despite education being the responsibility of the province (state) rather than the country, the overarching goal of physical education curricula is to have children and youth become active for life (Kilborn, Lorusso & Francis 2015). The moral purpose or vision for physical education curricula is consistent with Margaret Whitehead's vision for physical literacy, "…as appropriate to each individual's endowment, physical literacy can be described as a disposition in which individuals have: the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for maintaining purposeful physical pursuits/activities throughout the lifecourse" (2010). A number of researchers have argued that physical education and physical literacy are inextricably linked (Almond 2013; Liu et al., 2017; Mandigo 2015; Roetert & Jefferies 2014; Roetert et al., 2017; Talbot 2014; UNESCO 2004; Whitehead 2013) although the exact nature of the relationship is still being contested (Bryant et al., 2016, Cairney & Clark 2016). What cannot be argued, however, is that there has been growing interest in how physical literacy theory may manifest in educational contexts (Lynch 2016).

In the past several years, Canada has led the way in adopting the principles and practices associated with physical literacy in both education and sport (Higgs 2010; Roetert & MacDonald

2015), with many provincial jurisdictions placing physical literacy prominently in their physical education curricula (Kilborn et al. 2015). Despite arguments over a definitive educative role, and the immediate lack of evidence for implementation in physical education (Castelli et al., 2015; Jurbala 2015), many Canadian physical educators are now challenged to deliver quality physical education programs rich in experiences that develop student physical literacy.

Physical Literacy and Physical Education

In education, the concept of physical literacy has "[been] used within the profession for some years, possibly as an alternative to the idea of being physically educated" (Whitehead, 2001, p.127), with the United Nations Educational Scientific Cultural Organization (UNESCO) recognizing it as one of several central tenets in a quality physical education framework (UNESCO, 2015). Indeed, physical literacy has been proposed as foundational to maintaining physical activity throughout the lifecourse (Higgs, 2010). The fact that the concept of physical literacy is largely being presented as an individual's 'cradle to grave' journey that ebbs and flows over time; and, that the concept embraces a lifelong approach to healthy active living (Doozan & Bae, 2016; Longmuir & Tremblay, 2016), makes it an attractive theory for many physical educators (Lundvall, 2015; Roetert & Jefferies 2014, Roetert & MacDonald, 2015) and policy makers (Dudley et al., 2017).

It has been argued that the increasing of physical activity participation, the improvement of attitudes towards health and physical activity, and the development of movement skills are better addressed in a cross-curricular way (Dudley et al., 2011; Knox et al., 2009); and therefore physical literacy should be seen as a journey that a school and its wider community can service (Dudley et al. 2011). This thesis focuses upon the manifestation of physical literacy in a

secondary school physical education program. It is perhaps pertinent therefore, to first examine the relationship between physical literacy and physical education.

Physical literacy has been defined within the field of education, and for the subject of physical education, by organizations worldwide and here in Canada, who have capitalized on Margaret Whitehead's theories and resulting definitions of the concept from the early part of this century. As previously articulated, UNESCO (2015) identifies the concept of physical literacy as being foundational to any quality physical education program. They go on to specify that physical literacy is not a programme but "an *outcome* of any structured physical education provision" (UNESCO, 2015, p.24), which can be "achieved more readily if learners encounter a range of age and stage appropriate opportunities" (p.24). Perhaps more importantly, the suggestion is made that educational policy makers and curriculum developers support physical literacy as being a critical concept driving physical education, and therefore "the promotion of physical literacy should then...[be a] key feature of any physical education curriculum throughout primary and secondary education." (UNESCO, 2015, p.24). Canada's national leader in health and physical education, Physical and Health Education (PHE) Canada, champion physical literacy as also being foundational to any quality health and physical education program, releasing a position paper in 2009 to assist educators across Canada make sense of the concept and move forward with its implementation (Mandigo et al. 2009). PHE Canada also adopted its own definition of the concept as being "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" (n.d.). This definition also contains all the key outcomes outlined by Whitehead's seminal work on the concept.

Despite an unclear road map of where physical literacy is headed, a lack of consensus as to its definition (Dudley et al., 2017; Edwards et al., 2018; Jurbala, 2015; Sprake & Walker 2015), and unclear assumptions as to its educative role (Harvey & Pill, 2018; Lundvall, 2016), physical education curricula from around the world and here in Canada have adopted the concept (Kilborn et al., 2015, Lloyd, 2011), with an abundance of learning objectives and outcomes rooted in physical literacy theory (ACARA n.d.; British Columbia Ministry of Education 2015a, 2015b & 2015c; Ministry of Ontario, 2015a & 2015b; SHAPE, 2016). The adoption of physical literacy by educational ministries is perhaps not surprising, as the concept has been touted by many as a new approach to physical education (Jurbala, 2015).

Several provincial health and physical education curricula in Canada emphasize that students could become physically literate as a result of physical education curriculum being taught effectively by teachers (i.e. achieving grade specific standards, expectations, or outcomes) (Stoddart & Humbert, 2017). Coupled with the acknowledgment that school plays a crucial role in child development, it could be argued that it is essential for teachers of physical education to understand physical literacy (Castelli et al., 2015; MacDonald, 2015, Leiss 2016; Stoddart & Humbert, 2017). Physical educators must now position themselves to maximize this opportunity to engage students in diverse ways (across learning domains and physical activity contexts). With physical education programs reaching virtually all children to some degree, it could also be argued that teachers play a pivotal role in not only developing physical literacy in their students, but also promoting awareness and understanding of the concept with teaching colleagues, school administrators, parents, and the wider educational community (Silverman & Mercier, 2015; Sprake & Walker, 2013; Stoddart & Humbert, 2017). Teacher education and associated

pedagogical supports are, therefore, of prime importance to the continued proliferation of the concept in schools across Canada.

Indeed, the concept is already entrenched in physical education teacher training and practice (as well as curricula) in England, Northern Ireland, Scotland, and Wales (Dowens, Dalziell, & French, 2013; McKee, Breslin, Haughey, & Donnelly, 2013; Newton & Bassett, 2013; Rainer & Davies, 2013) and to a lesser degree in the U.S. and here in Canada (Kriellaars, 2017, Roetert & MacDonald, 2015, Silverman & Mercier, 2015; Tristiani & Fraser-Thomas, 2014). The fact that the concept is becoming a part of the educational landscape in Canada is promising. In the coming pages, this study continuously highlights the importance for educators to have a deep knowledge and understanding of physical literacy in order to put into action all the concept's key learning outcomes and other critical attributes seamlessly and with fidelity. This will not be an easy task for educators, as the literature suggests that many do not yet have a deep understanding of physical literacy (Stoddart & Humbert, 2017; Robinson, Randall & Barrett, 2018). It will also continue to be a challenge for educators considering the continued contested nature of the concept (Dudley et al., 2017). Despite some initial findings to support various aspects of the concept's practical application (Cairney et al., 2018; Castelli et al., 2015 Dudley, 2015; Francis et al., 2016; Sum et al., 2017; Sum et al., 2016), some still argue that it is necessary to come to a common definition and pedagogical clarity for physical education practitioners to move forward (Pill & Hyndman, 2018). Acknowledging the fact that educators still need the concept to be further researched, I really appreciated an analogy that one of the leading experts on physical literacy, Dr. Dean Dudley from Australia, provided during a recent presentation on the concept here in Edmonton in April of 2018: suggesting that, like the Russian Chemist Dimitri Mendeleev, who formulated the Periodic Law and then created the periodic

table of elements, and who then purposefully left space in the table for future discoveries; researchers and educators must think of physical literacy as being a pliable, workable concept, whose critical attributes will not change, yet there is much still to discover about its properties and applications (Dudley, 2018). With an understanding that the concept has been socially constructed, one would expect future findings resulting in a changing nature of the concept to be viewed with optimism and inevitability.

The Operationalization of Physical Literacy within Physical Education

"Ultimately, researchers need to operationalize physical literacy and generate meaningful, measurable differences that will eventually be the arbiter of what physical literacy is and how it works" (Bryant et al. 2016)

Operationalization is the process by which a researcher defines how a concept is measured, observed, or manipulated within a study (Emilio, 2003). In research design, this process is used to define the measurement of a phenomenon that is not necessarily directly measurable, though its existence is indicated by other phenomena. Physical literacy is a complex phenomenon can make developing any assessment framework extremely challenging (Dudley, 2015). In the discourse surrounding physical literacy, there is continued discussion around its operationalization and assessment by both researchers and educators, particularly in Canada (Chen 2015; Edwards et al., 2018; Francis et al., 2016; HALO, 2013; Kriellaars et al., 2013; Lodewyk & Mandigo, 2017; Longmuir et al., 2015; Longmuir 2013; PHE Canada, 2014; Robinson & Randall, 2017; Tremblay & Lloyd, 2010; Tremblay & Longmuir, 2017). Some have argued that assessment and evaluation are fundamental to the education and health fields and there has been demand over the years to have conceptually appealing, universal testing procedures which measure the essence of physical literacy (Tremblay & Lloyd, 2010; Longmuir 2013). However, a number of other researchers cite the problematic nature of assessing physical

literacy in its entirety (Lundvall, 2015; McCaffrey & Singleton, 2013; Tompsett, Burkett, & McKean, 2014), recognizing the tension that exists when the concept is subject to summative evaluations. Lundvall argues that "crucial questions, or conflicts, arise when an abstract concept such as physical literacy is put into the educational context for learner mastery" (2015, p. 116).

Presently, researchers and educators are currently left with more questions than answers regarding its operationalization and assessment (how it can be observed or measured). Indeed, the complex nature of physical literacy's operationalization and assessment were revealed in a recent systematic review conducted by Edwards et al., (2018) which outlined that "while many policy makers and stakeholders currently advocate physical literacy programs and interventions, the definitions of physical literacy adopted by these schemes differ.. thus, causing disparities of how to best operationalize and measure/assess the concept." (p. 660). What is revealing in the literature, is that most of these assessments only attend to physical competence (only one of the key outcomes of the concept).

With all this being said, knowing the critical nature of assessment in the field of education (Hattie, 2009), researchers' attempts to provide a way forward in this regard remains of significant importance. Curriculum pressures, which include physical literacy living in student learning outcomes that are required to be reported on by educators will likely ensure continued research and rich discussion in this area. One would also expect researchers and educators to continue to debate the nature of physical literacy and whether it is measurable and understandable in terms of empirical observations, while maintaining fidelity to Whiteheadian definitions and original intentions of the concept.

With the rapid proliferation of physical literacy (Jurbala, 2015), particularly here in Canada across the sport, education, health and recreation sectors (Dudley, et al., 2017), three

different physical literacy assessment protocols have been designed for practitioner use (Kriellaars, 2013; Passport for Life, n.d.; Tremblay & Lloyd, 2010), by three groups whose objectives differ, and whose notion of physical literacy have been taken up and interpreted differently (Robinson & Randall, 2017). The development of these assessment protocols proceed from different definitions and use different practical approaches to measurement (Kriellaars, 2013; Passport for life n.d; Tremblay & Lloyd, 2010) that threaten to further confuse the issue for those who want to teach and assess physical literacy (Jurbala, 2015). In agreement is Robinson & Randall (2017), whose conceptual critique of Canada's instruments to assess physical literacy [including PHE Canada's *Passport for Life*, CS4L's *Physical Literacy Assessment for Youth (PLAY) tool,* and the Healthy Active Living and Obesity Research Group's (HALO) *Canadian Assessment of Physical Literacy (CAPL)]* centered on usability for practitioners, trustworthiness, and fidelity to Whitehead's definitions of physical literacy (2001, 2007, 2010). Although counter arguments to this critique have followed (Tremblay & Longmuir, 2017), we are faced with the question: *where does physical literacy live in our physical education programs?*

Resistance to Change in Physical Education

"Physical education is the most effective means of providing all children and youth with the skills, attitudes, values, knowledge and understanding for lifelong participation in society."
The Declaration of Berlin 2013 – UNESCO's World Sports Ministers Conference (MINEPS V)

UNESCO (2015), recently paid tribute to the importance of physical education stating that "besides the health concerns, it is essential that governments take policy action to ensure the subject secures its rightful place in school curricula and that, consequently, students benefit from exposure to alternative learning domains" (p.6). Even parliamentary institutions have taken the view that physical education has the propensity to make significant and distinctive contributions

to children's physical, mental, social, and moral development to include respect for the body, integrated development of mind and body, understanding of physical activity in health promotion, the development of self-esteem and self-confidence, and a whole host of other behavioral, social, cognitive, emotional, and spiritual positives (European Parliament, 2007 from Hardman, 2011).

Despite such support, it's reasonable to say that physical education historically, and still today, hasn't always enjoyed the status of other school subjects (Kirk, 2010; Telford, 2017). The curricular position of physical education has always been somewhat precarious (Rossi et al., 2009), and this seemed to be less about the inherent value and content of physical education, and more about how other school curricula have tended to be conceptualized and prioritized (Bailey, 2018). Physical Education has found itself pushed to the bottom of the educational hierarchy due largely to unquestioned assumptions about the mind and body (Bailey, 2018) which, it could be argued, the concept of physical literacy aspires to address (Whitehead, 1990, 2010). Further to this, Physical Education is termed 'gym' class by many students, parents and educators alike, inferring that subject experiences lack an educational component. The focus within many health, physical education and other related curricula remains to be on the promotion of "health and fitness" and the prevention of obesity, despite evidence that these can detract from participation outcomes and the achievement of other, potentially more worthwhile values and experiences (Beni et al., 2017; Evans et al., 2008; Gard and Wright 2005, Kretchmar, 2008). For example, physical literacy is proposed to highlight the developing and maintaining of all-round embodied competence, together with positive attitudes towards the sphere of human activity (Whitehead, 2007). Moreover, the concept embraces an individual developing the ability to demonstrate the capacity to reflect over the nature of his or her performances and how they intended their bodies

to perform (Lundvall, 2016). Based on these and other similar premises, it is easy to see how physical literacy could further enrich physical education. Some would argue that a physical education program rich in the components of physical literacy, deeply addresses not just the physical, but the behavioral, affective and cognitive domains of learning (Robinson & Randall, 2016), and has the potential to address pieces of the narrative surrounding the subject's marginalization. Further to this, physical literacy is built on a philosophical underpinning that can support and complement society's understandings of physical education (Lundvall, 2016), perhaps reiterating the accountability and educational value in physical education, within and beyond its contribution to physical activity, health, and fitness (Roetert & MacDonald, 2015, Sprake & Walker, 2013)

However, despite the promise of physical literacy, traditionally, the field of physical education (PE) has been largely resistant to change (Cameron, 2012; Kirk & Tinning, 1994; MacLean et al, 2015), and this is of particular concern since there has been no shortage of innovative pedagogies and practices to emerge in physical education (Bunker & Thorpe, 1982; Hellison & Martinek, 2006; Launder, 2001; Siedentop, 1994; Whitehead, 2010). Experts in the field of physical education have been arguing that physical education's resistance to change poses a serious problem to its future (Cameron 2012; Kirk, 2010, 2012; Laker, 2003; Sage, 1993, 2003; Tinning, 2011), calling for reinvention and reform, both in theory and praxis (Cameron, 2012; Harman & Marshall, 2009; Lawson, 2009).

In recent literature (Beni et al., 2017; Casey & Hastie, 2014; Kirk, 2013) a models-based approach has been advocated as a means of overcoming the serious limitations of the traditional approach to physical education. Kirk (2013) states, that "models-based practice [MBP] offers a possible resolution to these problems by limiting the range of learning outcomes, subject matter

and teaching strategies appropriate to each pedagogical model and thus the arguments that can be used for educational value" (p.973) and that "physical literacy... demonstrates a well-argued philosophical position on physical education that is in [his] view ripe for development as a pedagogical model." (p.975). An instructional or pedagogical model is a way of organizing the interdependent elements of curriculum, learning and teaching to achieve specific learning outcomes (Casey & Hastie, 2014). This 'blueprint' can provide a scope and sequence of learning activities, and a way of organizing a subject's conceptual and procedural knowledge. In physical education, as previously mentioned, there have been several distinct pedagogical models used, each having specific design specification that prescribes "non-negotiable" features (Casey & Hastie, 2014). It is necessary for each pedagogical model to be flexible enough to allow educators to design units of work that are suited to the specific circumstances of their local contexts. Indeed, Kirk (2013, p. 979) has argued "as a design specification, each model leaves enough space for local adaptation."

Whitehead's notions of physical literacy as described earlier in this chapter has clear implications for the pedagogy (teaching, learning and curriculum) of physical education. By drawing upon Whitehead's definition that includes the key learning outcomes of motivation, confidence, physical competence, knowledge and understanding; one can see the basis for a pedagogical model for physical literacy (Kirk, 2013). More recently, Dudley (2015) reviewed seminal definitions of physical literacy and numerous models of physical education instruction to establish four common core elements of physical literacy. Using Whitehead's definitions and key learning outcomes as an umbrella for his work, he proposes that these four core elements contained within a model of physical literacy can manifest in observable student behavior and be assessed via an evidence-derived observed learning taxonomy (in this case he uses the Structure

of Observed Learning Outcomes [SOLO] taxonomy). These core elements are: "movement competencies; rules, tactics, and strategies of movement; motivational and behavioral skills of movement; and personal and social attributes of movement" (Dudley, 2015, p.238). In pursuit of the key learning outcomes both Whitehead (2011, 2013), and Dudley (2015) provide some detailed analysis of the teacher (Whitehead) and student (Dudley) behaviours that form the basis of the benchmarks, that provide models with distinctive identities (Kirk, 2013).

Kirk (2013) proposes that Whitehead's continued work in this area offers an abundance of best practices for teachers, namely: role modelling ways to be active; showing respect for the individual student and recognizing their efforts, progress and achievements; utilizing assessments as a learning tool for students; and empowering students to value and take responsibility for their own learning. These pedagogical practices in turn will be reflected in student behaviors, such as students demonstrating respect for their peers and other persons in all aspects of school life. These preferred pedagogical practices imply teachers will need to have comprehensive knowledge and understanding of the various movement contexts, physical literacy as intended by Whitehead, and the broader requirements of physical education curricula; and, be able to transfer this knowledge and understanding into rich educative movement experiences (Ennis, 2015). In particular, both Whitehead (2011), Dudley (2015) and others (Ennis 2015; Kilborn et al., 2015; Roetert & MacDonald, 2015) tout teachers' content knowledge expertise as being key - having the ability to structure developmentally appropriate and sequenced learning activities and tasks that are unique to physical literacy. Many consider educators' knowledge and understanding of movement competencies of primary importance (Cairney et al., 2018; Dudley, 2015; Kirk, 2013; Kriellaars, 2017).

Understanding the fact that interest in physical literacy among sport and physical activity

(and physical education) practitioners and policy makers continue to grow with breath-taking rapidity (Lundvall, 2016), it can be claimed that practitioner support is necessary for its continued impetus amongst physical educators. This thesis not only argues the case for the development of a framework that could support a pedagogical model to best develop physical literacy, it provides a draft framework to be used and further tested by researchers and educators.

Applying a Framework to Support Physical Literacy in an Urban High School

As previously referenced, there is a body of literature supporting the value of physical literacy being a focal point for any physical education program (Dudley, 2015; Ennis 2015). However, what is clear from an examination and review of the literature is that there is a need for more research to be conducted and applied to assist physical educators to effectively operationalize and implement physical literacy into K-12 physical education programs. A research to practice gap was established highlighting the lack of an evidence-informed theoretical framework supporting the application of physical literacy. Earlier in this chapter, an argument was made for using a model-based approach to physical education pedagogy, and further to this, the need for establishing a framework that could support a pedagogical model for physical literacy (Casey & Hastie, 2014; Dudley, 2015; Kirk, 2013; Whitehead, 2011, 2013). The authors propose that this is needed to support Alberta's educators moving forward, particularly knowing that future provincially mandated wellness-related curriculum documents will champion physical literacy as one of its key ingredients.

Using a large body of current literature on the concept, the *Physical Literacy Praxis Framework* (PLP) was developed, bringing together what the authors view as critical components of physical education and physical literacy theory and practice (Figure 2.0). This framework, when carefully considered and consistently implemented, has the potential to enrich

the experiences of Alberta's high school students in Physical Education, with the intention of providing a platform for fostering students' disposition to capitalize on their motile potential to make a significant contribution to the quality of their lives. (Whitehead, 2007). Considering this information, the researchers of this case study used the latest research and best practices to establish a draft framework (outlined in Chapter 3) that supports physical educators in their pursuit of effectively implementing a research-informed model of physical literacy. The idea in this case was to develop, and then field-test a research-informed framework that created optimal conditions for physical educators to bridge the gap between theory and practice, and perhaps, for school administrators, consultants, department heads, and other key decision makers at the school level, to have a greater ability to program effectively for students enrolled in physical education courses. The following bounded case study field tests this draft framework to support the effective operationalization and implementation of physical literacy in an urban metropolitan high school setting. The study is focused specifically on the perspective of educators, and does not contain student perspectives.

Before, embarking on this journey, and the particulars of the framework are further discussed and deconstructed, the researchers had to come to the decision on a definition of physical literacy that would help underpin the framework, and a pedagogical model that best supported Whitehead's proposed key outcomes of physical literacy. 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, British Columbia. One of the purposes of Canada's physical literacy consensus statement was "to promote the value of physical literacy and preserve the integrity of the concept" (CS4L, 2014). The resulting definition underpins our draft framework,

and the subsequent research conducted during this case study: "Physical literacy is the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life*"* (International Physical Literacy Association, 2014)

This consensus statement identified four equally valued elements of physical literacy: (a) *affective* (motivation and confidence); (b) *physical* (physical competence); (c) *cognitive* knowledge and understanding; and (d) *behavioral* (engagement in physical activities for life) (Robinson & Randall., 2016). All these elements must be considered when developing physical literacy, regardless of the context (Stoddart & Humbert, 2017). The reader will also notice, during the subsequent chapters, that Dudley's (2015) work on observed physical literacy provides a context for conversations with participating educators throughout the study, as the educators identify markers of student progress in this regard.

The purpose of the study was to examine the implementation of physical literacy in the school setting, specifically a Grade 10 physical education context. Grade 10 was specifically chosen as Physical Education 10 is a course that every student in Alberta needs to successfully complete as part of obtaining their Alberta High School Diploma, therefore PE 10 classes are often comprised of students with a variety of attitudes towards physical education. The study explored how an evidence-informed theoretical framework of physical literacy could work. The essential question was: *How does an evidence-informed framework for practitioners' implementation of physical literacy impact the delivery of physical education?*

In concert with Alberta's mandated *K-12 Physical Education program of studies*, our draft framework was introduced to three high school educators to help provide educational experiences rich in physical literacy over the course of a high school semester (term). Further

discussion regarding the rationale and purpose behind the study, its parameters, the draft framework, and research supporting its components, are discussed at length in *Chapter 3*, while the study's results are discussed at length in *Chapter 4*. The fifth and final chapter of the thesis provides some closing thoughts and points of discussion, along with potential future avenues for research in this area.

In closing, many believe physical literacy offers a new approach for school-based physical education (Dudley 2015, Ennis, 2015). It is asserted that physical literacy-based school programming is likely to provide rich and authentic learning experiences for secondary aged pupils (Killingbeck, Bowler, Golding, & Sammon, 2007 p. 20). Given the adoption of physical literacy objectives in some Canadian school curricula (Ontario, British Columbia and Alberta's draft documents), physical educators are now beginning to understand how to deliver physical literacy based programs (Mandigo, Francis, Lodewyk, & Lopez, 2009)" [Jurbala, 2015, p. 372]. It is also argued (Jurbala, 2015) that, as it was envisaged by Margaret Whitehead, Rebecca Lloyd, and others; physical literacy-supportive curricula and praxis in educational and sport settings needs to be re-imagined and considerably revised from the mechanistic and discipline-based approaches in current use. Learners need to be encouraged to create and explore their movement, to nurture a greater connection between their embodiment and the physical world, and to reflect upon and understand the experiences of movement (Jurbala, 2015).

These propositions may not be such an easy task in Alberta's classrooms. Despite Alberta's current K-12 Physical Education program of studies being conceptually based, and that it places physical activity within a broader perspective of total fitness and well-being, the majority of a student's K-12 physical education experiences are often delivered by generalist educators with minimal training in the delivery of quality physical education programming

(Mandigo et al. 2004b) and perhaps a limited knowledge and understanding of the principles of physical literacy (Roetert & MacDonald, 2015). Research demonstrates the need for having teachers trained in physical education (Mandigo, 2004a, Mandigo 2004b, physical literacy (Sum et al., 2018), and with continued professional development (CPD) in these areas (Armour et al., 2017; Darling & Hammond, 2006). A critical component to the success of physical literacy within physical education lies with the delivery of quality physical education programming and development of important skills to lead an active, healthy lifestyle (e.g., motor and sport skill development) (Hansen, 1990; Mandigo et al, 2004; Martens, 1990; McKenzie, Sallis, Kolody, & Faucette, 1997; Sallis et al., 1996; Tremblay et al., 1996). Educators minimally trained in physical education coupled with fierce competition for instructional minutes amongst the growing number and range of course options now available to secondary students in particular, further reduces the likelihood that Alberta's students are being provided with such quality experiences and opportunities to reflect upon their experiences in physical education (Mandigo et al 2001).

Chapter 2: A Literature Review of Physical Literacy: Theory and Practice

Searching Through Databases

The literature review includes the current knowledge and substantive findings as well as theoretical and methodological contributions to the concept of physical literacy. The review was conducted to establish whether there is a research to practice gap when examining the concept of physical literacy. Delving into the literature was an opportunity to survey the landscape of physical literacy; consider its relationship with physical education; and study efforts to operationalize and apply the concept into physical education programming.

An electronic search strategy was employed using the EBSCO Discovery Service (EDS), with all databases being included. The extent of the search was limited to publications in the English language, that were scholarly (peer reviewed), published journals. No particular start date was adopted, and the last search was conducted on June 30th, 2018. The search terms included: 'physical literacy'; 'physical literacy' AND 'physical education'; 'physical literacy' AND 'physical education' AND 'framework'; 'physical literacy' AND 'physical education' AND 'implementation'; and, 'physical literacy' AND 'physical education' AND 'operationalization'. This search included all of the search terms in the title or full text. Inverted commas were inserted around the term 'physical literacy' and 'physical education' to ensure searches would find papers in relation to physical literacy and physical education, as opposed to searches related to 'physical' and 'literacy', or 'physical' and 'education'.

The results were as follows: for the search terms 'physical literacy' 389 peer reviewed journals, including 357 academic journals, were found. For the search terms 'Physical literacy' and 'physical education' 239 peer reviewed journals were found, of which were 228 academic journals. When the search terms were expanded to include 'physical literacy', 'physical

education' and 'framework', the results were narrowed to 61 peer review journals, of which 58 were academic journals. Additionally, as the literature review also searched for attempts to operationalize physical literacy, particularly in the field of education, search terms 'physical literacy', 'physical education' and 'operationalization' yielded only 3 peer reviewed journals, 2 of which were academic journals. The following sections provide a synopsis of the literature, and provides a rationale for studying the research to practice 'gap' for physical literacy.

The Concept of Physical Literacy

The emergence of physical literacy over the past two decades has opened up some very interesting discussions amongst researchers, educators and policy makers regarding its conceptualization, its operationalization, and its application within educational settings; and also for its potential for reinvigorating physical education (Sprake & Walker, 2013). Initially, research on the topic has sought to further the collective understanding on the concept, determining its generalizability (Jurbala, 2015). Although originally mentioned in British and American literature in the 1930's, the concept's rebirth came about in journal articles from Dr. Margaret Whitehead (1993, 2001, 2007, 2010, 2011, 2013) during the latter part of the 20th century, and offer phenomenological, monist, and existential perspectives. Although, perhaps still on the periphery of the central discourse in physical education, there are growing conversations in the field of physical education with embodiment and the construction of the self (Block & Weatherford 2013; Brown & Payne, 2009; Brown 2013; Stolz, 2013).The merits of this monist perspective is articulated thoroughly in Whitehead's early work (1990, 1993, 2001). However, current literature contains different representations of the physical literacy construct (Chen & Sun, 2015; Edwards et al., 2017; McKean, 2013; Tremblay & Lloyd, 2010), and although many representations show a considerable degree of fidelity to Whitehead's definitions

(Mandigo et al, 2009; UNESCO, 2015); some organizations have interpreted and repurposed Whitehead's definitions to suit the needs of their stakeholders (CS4L, 2012; Higgs, 2010), while other organizations have offered slight variations on Whitehead's definition for purposes of assessment (Kriellaars, 2013; PHE Canada n.d.; Tremblay & Lloyd, 2010;).

Despite the literature conveying a high degree of fidelity to the work of Whitehead worldwide, some researchers have called for the need to further unify, clarify and clearly articulate current definitions in order to legitimize the concept (Pill & Hyndman, 2018). Jurbala (2015) argues that the various interpretations and re-definitions of the term are due to the use of a metaphoric rather than a theoretical foundation, while others comment that the lack of definitional consensus, has prevented a universal understanding of the concept, which has led to some physical education curriculum documents across the globe remaining devoid of the concept (MacDonald & Enwright, 2013). It has been said that, without empirical evidence to support a coherent theoretical basis, the future of physical literacy remains unclear (Pill & Hydman, 2018), and its prominence could be short lived (Jurbala, 2015).

The Properties of Physical Literacy

Whitehead's definition itself has evolved over time, as global conversations have continued to occur between researchers, practitioners and other stakeholders in the educational, sport and recreational communities. The majority of the definitions maintain four key components (Robinson & Randall, 2016), considered as critical attributes of Whitehead's seminal work on the concept: motivation and confidence (affective); physical competence (physical); knowledge and understanding (cognitive); and lifetime engagement in physical activities (behavioral). Physical literacy has become a primary focus of physical activity (Giblin et al., 2014) and, as such, the literature conveys physical literacy as arguably an antecedent of

physical activity participation, while also being developed *through* physical activity participation (Edwards et al., 2017). Due to the acknowledged positive correlation between physical activity participation and improved health (CDC, 2018), the promotion of physical literacy is presumed to generate health benefits for youth (Gately, 2010).

Though Whitehead (2013) articulates the importance of developing a movement repertoire through repetitive exposure to a variety of movement skills across contexts, there are some definitions that prioritize physical competencies (McKee et al., 2013; Sheehan & Katz, 2011), with less emphasis being placed on other key components. This results in the appearance that physical literacy is developed exclusively through the acquisition, practice, and refinement of fundamental movement skills. Despite this, interest in the concept seems to suggest that the field is moving towards something new, and not just an assemblance or relabeling of previously established ideas in physical education (Dudley, 2018). There is belief that the sum of the concept is greater in value than its individual components (Dudley, 2018; Weinberg, 2013). The author explores the implications for educators regarding this point further in this chapter.

Although the definition continues to be debated, and that literature reveals a number of constructs vying for same conceptual space (Edwards et al, 2017), Whitehead herself, along with the IPLA (International Physical Literacy Association) and Canadian Sport for Life endorse the following definition: "Physical Literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life." (Whitehead, 2016 from IPLA & Whitehead agreed definition, May 2014). It is this definition that remains foundational to the draft framework, *Physical Literacy Praxis*, found within this thesis. The authors of the draft framework take comfort in knowing that many leading experts in the field, including Whitehead herself, have come to an agreement on

currently defining the concept, and that that the definition aligns to philosophical underpinnings found in almost every Canadian physical education curriculum document (Kilborn et al. 2015). This current definition has been refined several times as various organizations and governments from around the world, with varying agendas, have continued to embrace the concept, and program as they see fit. The IPLA definition is considered to have evolved from a previous definition outlined in Whitehead's 2010 work: "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" (p.12-14). This brings to the attention the notion of physical endowment. Whereas all persons exhibit the potential for being physically literate, its specific expression depends on an individual's natural physical abilities in relation to all capabilities, significant movement potential, and the cultural context.

In order to invite discourse amongst researchers and practitioners, Whitehead includes very robust descriptions of physical literacy and the embodied human experience in her seminal work. Indeed, more detailed characteristics of what constitutes a physically literate individual is to be found in the excerpt below from her work in 2001:

> The characteristics of a physically literate individual are that the person moves with poise, economy and confidence in a wide variety of physically challenging situations. In addition, the an 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. Physical Literacy requires a holistic engagement that encompasses physical capacities embedded in perception, experience, memory, anticipation and decision making (p.136)

What is interesting here is that despite its richness, which has resulted in excitement and a willingness to embrace the concept by a large percentage of the research and practitioner communities, many other researchers argue the need for consensus (both the definition and core constructs), in order to for a coherent research tradition to develop, and to prevent the concept from becoming meaningless and expendable (Corbin, 2016; Lounsberry & McKenzie, 2015; Pill & Hyndman, 2018). For effective research on this concept to take place, Edwards et al. (2017), in their review of the literature argues, that "if researchers are unable to articulate the hypothetical mechanisms explaining how concepts influence one another, then it is possible that no scientific theory is being tested by research, only relatively arbitrary/baseless and unscientific predictions. Hence, as well as understanding the defining properties of physical literacy and the underpinning philosophy, the final step in articulating a coherent 'paradigm' is to detail the theoretical associations and predictions offered by the theory." (p.114). This would allow for predictions surrounding *physical literacy theory* to be tested and operationalized appropriately.

The Promise of Physical Literacy and the Development of the Whole-Child

"*Physical Literacy can be characterised as the 'development of a disposition' as opposed to the realisation of an end product*" (Whitehead, 2010)

Proponents of the concept see its strength and educational validity in developing an individual's potential (Almond 2013; Dudley et al. 2017; Whitehead, 2001, 2007, 2010, 2011; Mandigo et al. 2009; Kriellaars, 2017). When examining Whitehead's work through the early part of this century, (2001, 2007, 2010, 2011, & 2013) it speaks to all learning domains, and the development and well-being of the whole-child (physical, social, emotional, spiritual and intellectual). As growth in a person's physical literacy occurs, they are said to: experience the satisfaction of progress and success in physical activity; a growth in self-awareness and self-

assurance; a strengthening of their global belief and self-esteem; develop their confidence to explore participation in a wide range of activities; acquire a sense of empowerment to make positive choices in relation to physical activity; enhance their all-around health and well-being; develop and maintain fitness and maintaining a healthy weight into old age; value physical activity and taking responsibility for their own participation; and, make informed decisions about the kind of purposeful physical activities they want to engage in on a regular basis (Whitehead, 2013).

Many believe these highly significant values elevate the status of physical education, preparing students for life after their formal years of education (Almond, 2013; Almond & Whitehead, 2013; Roetert & MacDonald, 2015; Sprake & Walker, 2013; Sprake & Walker, 2015; Talbot, 2014; UNESCO, 2004). Further to this, from a practitioner's standpoint, it could be argued that knowledge and understanding of physical literacy enables the development of a model for putting in place a more informed vision of what can be achieved in physical education (Almond, 2013). Despite the interest and excitement that physical literacy has generated, there are many who remain cautious about its widespread introduction, suggesting that greater clarification of its relationship with physical education is needed (Basset et al, 2013; Corbin, 2016; Hyndman & Pill, 2018; Lounsbery & McKenzie, 2016; Lynch, 2016; McCaffrey & Singleton, 2013). Others call for more research to be conducted, and that a more unified approach is needed to help educators operationalize its various components (Castelli et al, 2015; Jurbala, 2015; Robinson & Randall, 2016).

These statements invite further discourse, but also issue a challenge to researchers personally and professionally invested in this field of study. If physical literacy is indeed a goal of physical education and this is reflected in our future programs of study, then we as researchers

and educators, have an opportunity, and some might say an obligation, to effectively bridge research to practice: doing our utmost to provide further evidence to best support the effective operationalization, actualization and implementation of this robust concept. Given the perceived importance of physical literacy for improving physical activity engagement (Almond & Whitehead, 2013; Whitehead, 2010), it is unfortunate, at this point in time, that there is a scarcity of frameworks or models to assist with its operationalization and implementation (Giblin et al. 2014; Jurbala, 2015). Indeed, many countries (particularly the UK, Canada, Australia, New Zealand and the US, have pioneered large-scale initiatives in education, sport, health, and recreation to promote participation and performance in physical activities that are underpinned by various definitions of physical literacy (Dudley et al. 2017; Giblin et al., 2014;). The frameworks and models that do exist and dictate the structure of physical literacy programs currently lack an accepted governing standard and vary in interpretation across the globe (Giblin et al., 2014). The work ahead in this area continues to be challenging, particularly with continuously evolving definitions (Spengler, 2014) and emerging research.

Physical literacy in the Canadian educational context

As previously articulated, there is no doubting the concept's rapid proliferation across Canada. Over the last two decades**,** physical literacy has been used as a conceptual tool to guide policy decisions across several sectors. For example, physical literacy frames much of the mission of professional organizations such as Physical and Health Education (PHE) Canada and Sport for Life Canada, which serve physical education teachers and youth sport coaches, respectively (Fletcher et al., 2018). The Aspen Institute's *Physical Literacy: Global Environment Scan* conducted in 2014, touted Canada as having one of the "most established initiatives…[with] strong, effective messaging strategies" (p. 2), with an online presence that

assists educators, parents and coaches. The scan also suggests that provincial government and private funding for the aforementioned initiatives directly and indirectly related to physical literacy, remains substantial across sectors and perhaps more importantly, is found across the country.

In Canada, physical literacy is taught and developed through physical education, organized sport, and active play (Global Scan, 2014). In education, which remains the responsibility of Canadian provinces and territories, physical literacy has found its way into various initiatives, mandates and programs of study (Kilborn, 2015; Stoddart & Humbert, 2017). It's meteoric rise in the field of education within Canada could be considered surprising, as the literature clearly points to the concept being contested even within Canadian academic circles (Jurbala, 2015; Sprake & Walker, 2015). However, many researchers have suggested that the physical education curriculum should be underpinned by physical literacy as it is critical to long-term health (McKean, 2013). The majority of recently implemented curriculum documents or resources that support the disciplines of Physical Education and Health subscribe to the concept of physical literacy to varying degrees, including British Columbia, Ontario, Nova Scotia, Prince Edward Island, New Brunswick, and draft curriculum documents in Alberta (British Columbia Ministry of Education 2015a; 2015b; Ministry of Education, Alberta, Health and PE draft, 2017; Ministry of Ontario, 2015a; 2015b) Further to this, in British Columbia, and draft documents in Alberta articulate that the outcome of physical education is to develop physically literate individuals as proposed by Whitehead's various presentations and publications (British Columbia Ministry of Education 2015a; 2015b; Ministry of Education, Alberta, Health and PE draft, 2017). Despite the architecture that supports physical literacy somewhat in place, supports around teacher practice in several Canadian provinces, according to the literature, remain in the

infancy stages. Perhaps more pertinent, is that findings indicate a wide range of comprehension and confusion about how physical literacy is incorporated into instruction in the physical education curriculum (Stoddart & Humbert, 2017), and that teacher efficacy in this regard is critically important for students' development of physical literacy (Sum et al, 2018).

Provincial governments, who often do not have the immediate resources to operationalize a plan for implementation for educational initiatives, often contract out to third-party agencies to support implementation. Here in Alberta, although there are opportunities within the educational sector to become familiar with the concept of physical literacy, and with it, develop possible strategies to assist with its implementation (Be Fit for Life: *Physical Literacy Training and Certifications in Alberta,* n.d.), there is a scarcity of literature that examines the effectiveness of professional learning organized by schools boards for teachers around physical literacy. Moreover, additional research needs to be conducted exploring teacher knowledge and understanding of physical literacy in the Canadian context (Stoddart & Humbert, 2017; Robinson, Randall & Barrett, 2018), and their confidence and competence to implement its tenets. The case study on which this thesis is based attempts to add to the conversation in this regard.

Physical Literacy: Theory to Educational Practice

Particularly over the last decade or so, researchers have continued to explore physical literacy and its application within an educational setting, attempting to bridge the gap between theory and practice (Chen, 2015; Corbin, 2016; Doozan & Bae, 2016; Dudley, 2015; Jurbala, 2015; Lundvall & Tiden, 2013; MacDonald, 2016; Murdoch & Whitehead, 2013; Roetert & McDonald, 2015; Pot, Whitehead & Durden-Myers, 2017). Others have offered pre-service and

in-service teacher perspectives on physical literacy, and with it, implications for teacher professional learning, classroom practice, and teacher efficacy (Bassett, Sammon & Casey, 2013; Harvey & Pill, 2018; Newton & Bassett, 2013; Silverman & Mercier, 2015; Stoddart & Humbert, 2017; Sum et al.2018; Tristani & Fraser-Thomas, 2017). The framework, *Physical Literacy Praxis*, outlined in Chapter Three continues the conversation of addressing this research to practice gap, with Chapter Four highlighting the complexities that arise from applying a concept that is intended to be holistic in nature in a secondary school physical education setting.

The literature exposes a lack of consensus regarding the application of physical literacy, although a number of researchers argue for a clearly defined and well-articulated theory and approaches that support the development of embodied knowledge in order for practitioners to employ the concept effectively (Jurbala, 2015; Lundvall & Tiden, 2013). If the intent is to champion physical literacy in physical education settings, then changes in philosophical approaches and pedagogical practices in physical education have to follow. Pragmatists would argue that the gathering of empirical evidence and practical approaches to physical literacy would have to be in place in order for there to be a change in current practice (Creswell, 2003), and it is clear that the field is still working towards this. Despite many subscribing to Whitehead's continually evolving holistic definition of physical literacy, there seems to be an overriding desire to find a way to measure physical literacy (Edwards et al. 2017). This 'muddies the waters' and has often compounded tensions between the conflicting perspectives on the concept (Tremblay & Lloyd, 2010). With assessment being considered a powerful learning tool that can enhance learning and education (Fuentealba, 2011), the question may not be whether physical literacy should be assessed, but how. One could speculate that as long as physical literacy remains in the consciousness of physical education educators in a formal K-12 setting,

then the question of its assessment will always remain. Perhaps unsurprisingly, the question of its assessment and evaluation permeates the teacher participant narrative in Chapter 4.

In the systematic review by Edwards et al., (2017), the findings highlight the importance of providing clarity for educators, so that they have the ability to bridge theory to practice, stating "implications for applied practice include ensuring clarity of theoretical descriptions and phrases so that these can be translated clearly into a practical setting" (p. 113). Found within the literature, there are a number of assumptions that arise from attempting to combine existentialism, phenomenology and monism, and this is challenging for practitioners and researchers to access, operationalize and put into practice (Edwards et al. 2017). Whitehead (2010) discusses that once these underlying assumptions are accepted (that one's experience and interpretation of the world is heavily dependent on one's ability to perceive physical cues, and respond meaningfully in the physical realm [Edwards et al. 2017]) then the resulting pedagogy must focus on the person as a whole; personally relevant learning connected to real-world experiences; application to the individual's immediate context; and ipsative evaluation that focuses on individual progression. What is clear from this analysis, is the suggestion for educators to have a clear understanding of the concept (with all of its assumptions and interpretations) and develop practices while acknowledging particular assumptions.

Not surprisingly in the literature examining theory to practice, the focus remains on physical education programming for the individual, and experiences of the individual (Corbin, 2016; Pot, Whitehead & Durden-Myers 2017) internalizing meaning and offering an expressive response (Jurbala, 2015; Tristani & Fraser-Thomas, 2017). Critical to developing a lifelong disposition aligned with Whitehead's work, an individual's physical literacy journey depends upon developing the necessary tools, "scaffolding and progressing through skill acquisition,

understanding and applying how to make appropriate decisions regarding physical literacy, and ultimately learning how to adapt physical activity (PA) to [the] surrounding environment, with consideration to physical, psychological, and social dimensions." (Tristani & Fraser-Thomas, 2017, p. 4). Being cognizant of the individual's journey to date and current context becomes critical, with educators not only needing to have thorough understanding of concept, but the skills to adjust programming nimbly and with intention. Pedagogical approaches should reflect a learner-centered model with the resulting activities being challenging, realistic, and adaptable to the individual preferences and levels of attainment of the different learners (Pot, 2018). Furthermore, educators should provide educative experiences and opportunities in which learners can discover and develop their individual potential to stay motivated, confident, and competent for engagement in physical activities for life (Jurbala, 2015; Murdoch & Whitehead, 2013; Pot, Whitehead & Durden-Myers, 2017; Roetert & MacDonald, 2015; Whitehead, 2010).

The literature attempts to further unpack the much-debated discourse on physical literacy assessment (Robinson & Randall 2017; Tremblay & Lloyd, 2010; Tremblay and Longmuir 2017; Wainwright et al, 2016). A number of validated assessment instruments are offered and critiqued (Lodewyk & Mandigo, 2017; Longmuir et al. 2015; Robinson & Randall, 2017; Tremblay & Longmuir, 2017) and it is outside the scope of this study to delve deeper in physical literacy assessment both philosophically and practically. However, one could contend that future frameworks that support the concept's implementation have to consider implications for assessment and evaluation within PE settings. Is it possible for physical literacy to underpin a physical education program of studies (as it does currently in Ontario, British Columbia, and soon to be here in Alberta), without it being formally assessed? Knowing the critical nature of assessment in the field of education (Hattie, 2008), researchers and physical educators need to

continue to work through this assessment conundrum. A key understanding that should underpin assessment is that of physical literacy being a journey (Taplin, 2013). Furthermore, that journey is unique to each individual learner (Whitehead, 2007, 2010, 2013) and therefore perhaps a set of benchmarks across the lifecourse could be different for everyone. While we acknowledge that there are a number of carefully designed tools and assessments currently devised by researchers and used by physical educators to formatively assess components of the concept (CS4L 2014; HALO 2013, 2014; Francis et al. 2016; Lodewyk & Mandigo, 2017; Roetert & MacDonald, 2015), it has been argued that some fail to capture physical literacy as Whitehead intended it (Robinson & Randall, 2016).

Chapter 3 Physical Literacy Praxis – A Theoretical Framework for Physical Education

Background to the Framework

The emergence of physical literacy over the past two decades has opened up some very interesting discussions amongst researchers, educators and policy makers regarding its conceptualization, operationalization, and application within educational settings; and also for its potential for reinvigorating physical education (Sprake and Walker 2013). Initially, research on the topic has sought to further the collective understanding on the concept, determining its generalizability (Jurbala 2015). Although originally mentioned in British and American literature in the 1930's, the concept's rebirth came about in journal articles from Dr. Margaret Whitehead (1993, 2001, 2007, 2010, 2011, 2013) during the latter part of the 20th century, and offer phenomenological, monist and existential perspectives. Although, perhaps still on the periphery of the central discourse in physical education, there are growing conversations in the field of physical education with embodiment and the construction of the self (Block and Weatherford 2013; Brown 2013; Brown and Payne, 2009; Stolz 2013)

Some researchers support physical literacy as a rationale that can underpin physical education and as a foundation for the development of children and youth throughout their lives (Edwards et al. 2016; Lundvall 2016). Others are not convinced that we even need the theory at all, and that perhaps being 'physically educated' is enough (Hyndman & Pill 2018; Lounsberry & McKenzie 2016). Despite the ongoing debate (perhaps best illustrated by the reluctance to universally accept physical literacy in physical education curriculum documents, (Macdonald & Enright 2013), our own review suggests a need for a holistic framework that can support the integration or infusion of physical literacy into physical education programs. What is clear from the scarcity of implementation studies on physical literacy is the need for research to reveal ways

that educators teaching physical education can effectively operationalize and implement physical literacy into school physical education programs. Through an investigation of existing literature, arguments have be made for using a model-based approach to physical education pedagogy (Kirk, 2013), and further to this, the need for establishing a framework that could support a pedagogical model for physical literacy (Casey & Hastie 2014; Dudley 2015; Kirk 2013; Whitehead 2011, 2013).

Recent systematic reviews on physical literacy by Lundvall (2016) and Edwards et al., (2016) indicated the need for researchers to detail the theoretical associations and predictions offered by the theory, and for these predictions to be operationalized and tested – with the knowledge of the construct's defining properties and underpinning philosophy. There has also been an emergence of literature discussing the construct's operationalization from a variety of positions across sectors (Corbin 2016; Doozan & Bae 2016; Kozera 2017; Robinson and Randall 2016; Roetert et al., 2017; Sheehan et al. 2016; Stevens-Smith 2016). What is also noteworthy from these reviews, is that physical literacy seems to be have been a "longed-for" concept, particularly in physical education and despite its rapid evolution and re-formulation, it represents what should be encompassed within the discipline, and to some extent, assists in restating the educational value of physical education (Lundvall 2016).

The Value of Models-Based Practice in Physical Education

As part of our preparatory work prior to developing the framework we briefly explored the efficacy of models-based practice (MBP) in physical education. Although there is no clear agreement in the field about what a model is, or what may constitute models-based practice (Landi et al., 2016), Casey and Hastie (2014) suggest that a model is a "blueprint which describes certain procedures for organizing content, task structures and the sequencing of

learning activities" (p.422). As a construct, physical literacy has been recently suggested as an addition to more established models, such as Teaching Games for Understanding, Sport Education, and Teaching Personal and Social Responsibility (Kirk 2013; Landi et al., 2016)

Early proponents of MBP in physical education championed a single model (Casey 2014), but more recently others have suggested that one model is not capable of meeting the design challenges posed to teachers charged with delivering physical education in broad ranging and diverse contexts, with inherent variables such as learning goals and curricular content, facilities, activities, and personnel (Haerens et al., 2011; Lund & Tannehill 2010; Metzler 2011). However, what is evident is that central to the success of a single-model or multi-model approach is the expertise and comfort of the teacher (Kirk 2010). Importantly, Casey (2014) argues that when collaboration occurs between teachers and researchers, schools and universities, models can form a central strand of getting things 'pedagogically right' in physical education. Further reviews of literature have confirmed that pedagogical models in physical education can positively influence the physical, cognitive, social and affective learning of youth (Casey & Goodyear 2015; Dudley et al., 2016; Harvey and Jarrett 2014; Hastie et al., 2011). Others argue that models offer the pedagogical scaffolding necessary to improve the quality of physical education, therefore enhancing young people's health-related physical activity behaviors (Ennis 1999; Metzler 2011). Sustained partnerships between researchers and teachers are critical and on-going professional development to teachers is necessary to facilitate the development of knowledge and understanding of MBP (Casey, 2014). This, in turn, enables the conditions suitable for changes in teacher practice and the development of teacher confidence and competence (Armour & Yelling 2007; Casey 2014; Landi et al., 2016). Communication across institutional boundaries

(school boards and post-secondary institutions for example) and a variety of supports are also needed for these conditions to occur.

Outline of and Evidence for Physical Literacy Praxis

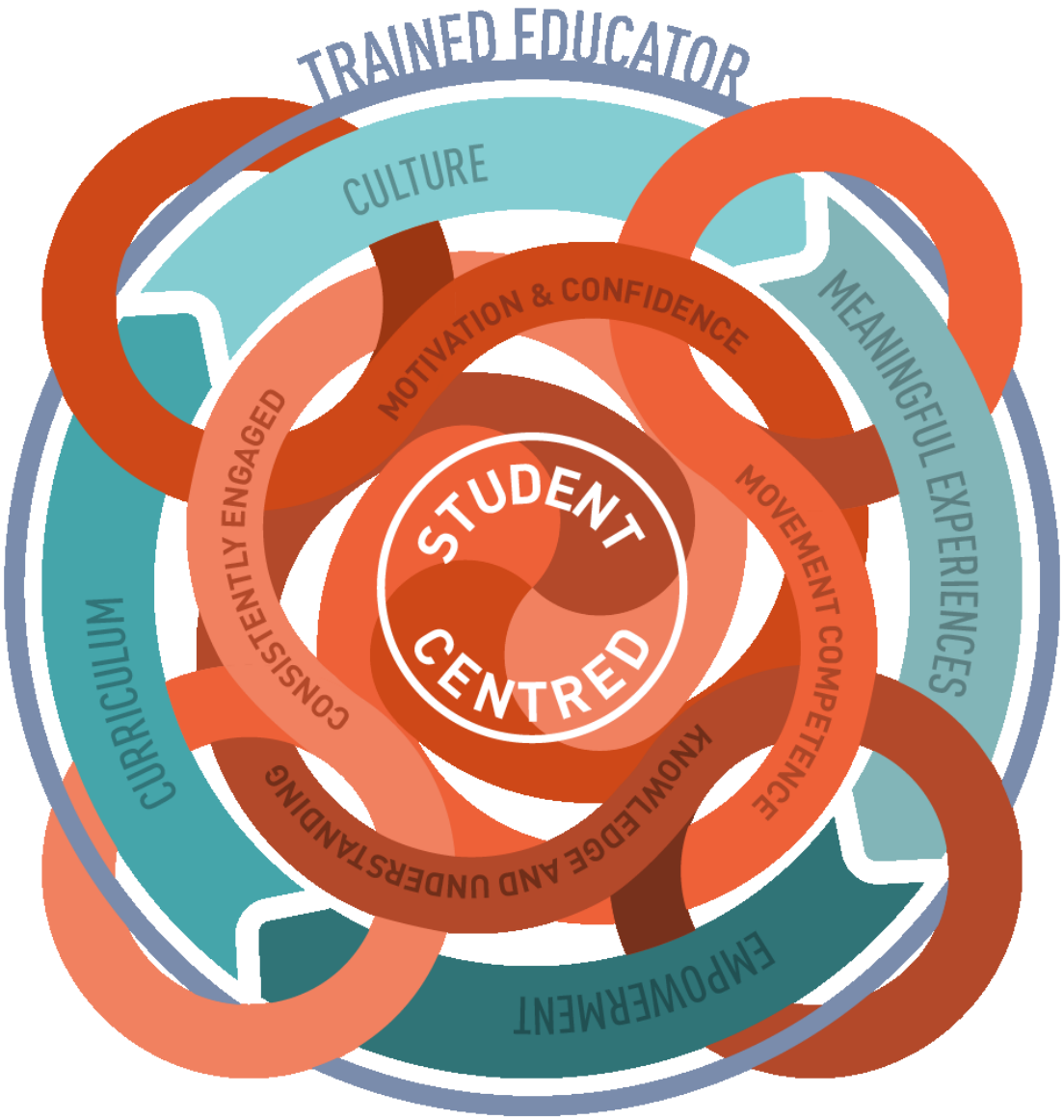


Fig. 3.0 Physical Literacy Praxis

We present Physical Literacy Praxis (PLP, Fig. 3.0) as an evidence-based framework intended to bridge the gap between research and practice, without favoring either. PLP is

designed to assist trained educators to implement a physical education program rich in experiences that support students' physical literacy journeys. In order to provide an overview of the framework, we will briefly explain the structure of PLP, then go on to share the evidence behind each section. The framework begins with a trained educator and highlights the importance of the physical education program being delivered by an educator who has the necessary knowledge, understanding and skills to deliver a well-planned and purposeful program. The next ring includes four inter-connected elements critical to developing a quality physical education program. Through the educator's stewardship, a culture that values the tenets of physical literacy must be developed throughout the duration of the program. This development occurs through movement experiences within the learning environments and interactions outside of the immediate physical education setting. A quality curriculum that allows for pedagogical practices supportive of students' development and journey of physical literacy is critical. When implementing a physical education program, teachers need to have the license and ability to devise learning experiences that encompass components of physical literacy, where students are moving towards embodiment. Students in the program have choice and voice. They are empowered by the educator to be architects of their own learning, developing the knowledge, skills and attitudes to value and embody tenets of physical literacy, including persistence, independence, initiative and the motivation to continue their journey. Understanding how students create meaningful experiences in physical education is the fourth component of this section and helps to shape their attitudes towards physical education and establish joy of movement. The four 'knots' that weave through all the components and are riveted in a student-centered approach are motivation & confidence, movement competence, knowledge & understanding and finally, consistently engaged. The success of PLP hinges upon a physical

education program that, through a variety of educative experiences, provides student activities in diverse environments that allow for learning and growth to occur in all four domains of physical literacy: physical, cognitive, affective and behavioral.

Trained Educator

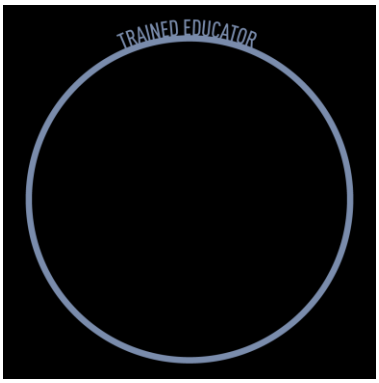


Fig. 3.1 Trained Educator

Our framework begins with a trained physical educator (Fig. 3.1). This is an intentional term to avoid getting bogged down in the specialist vs. generalist debate. We would argue, based on the evidence below and our personal experiences that the key ingredient for an effective teacher of physical education is training. Both specialists and generalists can become exceptional physical educators, as the evidence states further on. However, a certain type of degree does not guarantee excellence or mediocrity – which is why we settled on 'trained educator'. Research has clearly demonstrated the importance of specialists in the delivery of quality PE programs and the development of important skills that foster a healthy and active lifestyle (Constantinides et al., 2013; Hansen 1990; Mandigo et al., 2004a; Mckenzie, Sallis, Kolody, & Faucette 1997; Sallis et al. 1996; Patterson & Faucette 1990; Tremblay et al. 1996). Physical education specialists who have received more intensive and subject-specific training than generalist teachers are more likely to teach all areas of a physical education curriculum and deliver physical education confidently, accurately and efficiently (Constantinides et al., 2013; DeCorby, Halas,

Dixon, Wintrup & Janzen 2005; Faulkner et al., 2008; Silverman 2011). As well, physical education specialists have also been found to teach longer lessons, spend more time developing skills, provide more opportunities for more moderate to vigorous physical activities and use state-of-the-art physical education teaching practices (Davis, Burgeon, Brener, McManus and Wechsler 2005; Faulkner et al. 2008; McKenzie et al. 1995, McKenzie, Sallis, Kolody, & Faucette 1997; National Institute for Child Health and Human Development Study 2003; Sallis et al. 1997; Patterson & Faucette 1990). Moreover, physical education specialists have shown to be more knowledgeable in activities are developmentally appropriate, inclusive and gender-equitable (Janzen et al., 2003), knowing that having students practice skills for which they are not ready and that are too complex or difficult will impact skill development and attitudes towards activity (Silverman 2005).

There is also a body of evidence to support the notion that generalist teachers (those educators without a major in physical education), with continued professional learning, can provide quality physical education instruction and improve physical education outcomes for children (Elliot et al., 2013; Elliot and Campbell 2013; Miller et al., 2017; Parker et al., 2013; Sloan 2010). Further to this, consensus from researchers, experts, and professional organizations suggest that PE classes taught by instructors with appropriate training tend to have the greatest effect on student learning and program quality (Mandigo, 2004b). In this case, we have anchored the PLP framework around the educators with physical education training. A trained physical educator will more likely have the knowledge and ability through professional development, education and experience to differentiate instruction, knowing that physical literacy is very much an individual journey (Whitehead, 2010) and many components of the construct require practice and the right level of challenge coupled with appropriate feedback (Kriellaars 2017; Murdoch

and Whitehead 2013; Roetert and MacDonald 2015; Whitehead and Almond 2013) for development to continue. The need for sustained and continued quality professional learning remains paramount for educators to acquire and implement best practices in physical education.

The Planned and Purposeful Delivery of Physical Education Curriculum

"…physical education is such a large, rich and complex field of practice that it can legitimately aspire to achieve a wide range of educational outcomes for school-age children and youth." (Kirk 2013)

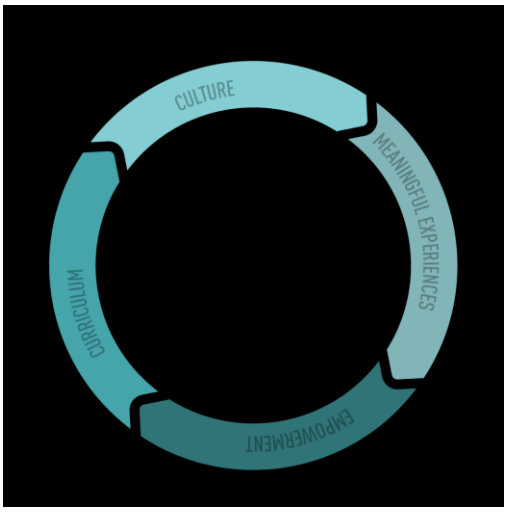


Figure 3.2 : Elements of Quality Programming

Recent Quality Physical Education guidelines set out by the United Nations Educational, Cultural and Scientific Organization (UNESCO) in 2015, aspire to ensure physical education secures a rightful place in school curricula (Kirk 2010; UNESCO 2015). Although traditionally a marginalized subject in schools (Collier, 2011), physical education has been shown to have educative value (Kirk & Tinning 1994; Kirk 2013; Siedentop 1994; Tinning 2000) and although these actual values are often contested (Kirk 2010; Thorburn & MacAllister 2013; Pringle 2010), physical education can be transformational and meaningful (Beni et al., 2017; Kretchmar 2008). As such, many provincial and national jurisdictions position physical education curricula as

having an assortment of educational values: such as having a unique role in developing students' skills in making health-enhancing decisions in relation to their health and physical activity participation (Australian Curriculum 2016); developing life skills as a strategy for managing life challenges (Alberta Physical Education 2000); promoting a deeper and more holistic understanding of overall health and wellbeing (British Columbia Curriculum 2015); and developing the skills needed to develop resilience, secure identity and a sense of self (Ontario Curriculum 2015) to name a few.

It has become accepted that physical education is a key venue in which to develop a child's physical literacy (Mandigo 2015; Mandigo et al., 2009; Roetert and Jefferies 2014; Talbot 2013; Whitehead 2010; Whitehead and Almond 2013). In fact, as stated by Gleddie, Hickson and Bradford (2018), perhaps it is the BEST place:

> Finally, one of the key founding principles of public education is just that – access to education for all. Egerton Ryerson, one of the key advocates for public education in Canada, firmly believed that schooling should not be a class privilege and should be not only universal but free (Alberta Teachers' Association, 2015). As such, public education is the ONE PLACE where we should be able to guarantee that EVERY student is able to access support for their individual journeys of physical literacy. Although other sectors such as sport, recreation, and health also support the concept, school is the only mandated place where all children can develop physical literacy regardless of gender, race, or socio-economic status and it is best achieved by quality, daily physical education. (p 53)

This commitment has been reflected in education's willingness (particularly in Canada) to position physical literacy centrally in recently reformed physical education curricula (Kilborn et al., 2015). The importance of a quality physical education program cannot be overstated, and

government mandated curriculum is the foundation those programs must be built on. A program that emphasizes health-related goals and activities that students can enjoy with the intent of continuing them over a lifetime, while providing opportunities for repetition-based learning and well-designed lessons, can give students the skills they need to be active as children and as adults, providing both short-term and long-term health benefits (Constantinides 2011; Garn, and Cothran 2006; McKenzie 2003; O'Reilly, Tompkins, & Gallant 2001; Wallhead & Buckworth 2004).

Creation and Support of Culture

> The physical education (PE) "classroom" provides a unique environment for investigating motivational and developmental issues among all young people. Because children participate in PE lessons throughout their school careers, it has been argued that PE can contribute to the development of positive physical self-perceptions, self-esteem, and physical activity in and beyond the school setting (Fox, 1992), excerpt from Taylor et al. 2014.

Researchers and educators have increasingly acknowledged the need for ensuring welcoming, caring, respectful and safe learning environments that respect diversity, and nurture a sense of belonging and a positive sense of self for all students (Konishi et al., 2017). When students feel like they belong, it encourages them to stay and engage in school. Previous research suggests that being engaged in school and classroom activities has a significant impact on students' subjective well-being (Creed, Muller & Patton 2003; Ecceles, Vida & Barber 2004) and their academic performance (Wang & Holcombe 2010). Moreover, students' experience of school-related well-being is a key mediator for emotional and cognitive engagement, and can contribute positively to their learning (Pietarinen, Soini & Pyhalto 2014).

According to self-determination theory, teachers can motivate students by supporting their psychological needs for relatedness, competence, and autonomy (Haerens et al., 2013). Using Deci and Ryan's self-determination theory (2000) as a foundation, researchers have

extensively explored the relationship between students' feelings of belonging and connectedness (Connell & Wellborn 1991) and the extent at which teachers support students' psychological needs. Eccles & Roeser (2011) have suggested that teacher practices heavily influence students' motivation and beliefs. This has implications not only for teacher pedagogical practices, but also the 'culture' – the environment in which students learn and develop. Taylor et al., (2014) claim that within the physical education context, research points towards a positive relationship between "psychological need support" and students' adaptive motivation, engagement, and psychological health (Taylor & Ntourmanis 2007). Shifting to a physical education program supportive of physical literacy development, Castelli et al., (2015) recommends focusing upon developing and implementing a whole-school approach; effective, differentiated instruction by PE teachers; the integration of technology for individualized tracking of student progress; a supportive school and classroom environment and; alignment of efforts with national initiatives.

As pointed out previously, a student's self-concept may be improved in a nurturing environment: an environment in which empowerment, independence, connectedness, and collective responsibility to pursue goals are also promoted (Castelli et al., 2015). Chen (2013), believes that children's self-motivation to continue being physically active is linked to early experiences in physical activity, so providing an environment that supports positive experiences is critical. The autonomy that results from a supportive classroom environment ultimately facilitates self-determination, and in physical education, studies have already illustrated that teachers are capable of teaching in a more autonomy-supportive ways by listening to the voices of their students (Mandigo et al., 2008), or by providing opportunities for student choice (Prusak et al., 2004) and initiative (Mandigo et al., 2008). Haerens et al., (2013) explain that engaging in behaviors relevant to the individuals in question and that of the surrounding community, assists

in the actualization of the overarching goal of lifelong participation in physical activity, a key element in the construct of physical literacy (Whitehead, 2001).

When establishing a culture in physical education that fosters student physical literacy, it is critical for the teacher to be autonomy-supportive, build solid relationships with students, and structure the environment so that students are optimally motivated for physical education (Van den Berghe et al., 2014). Later in this article, we discuss student motivation and confidence as it relates to physical literacy. However, it is very apparent that the approach of the teacher and the environment - the culture - ultimately plays a key role in student success within physical education settings.

Meaningful Experiences in Physical Education

> "When movement is experienced as joy, it adorns our lives, makes our days go better, and gives us something to look forward to. It provides a refreshing interlude. It prevents the world from turning an unbecoming shade of gray and keeps us from becoming tired and disinterested. When movement is joyful and meaningful, it may even inspire us to do things we never thought possible." (Kretchmar, 2008, p. 162).

Beni, Fletcher and NiChronin's (2017) literature review about young people's meaningful experiences in physical education identified five features as central influences: social interaction, fun, challenge, motor competence and personally relevant learning – all surrounded by the concept of delight. Further work from the Learning about Meaningful Physical Education (2019) research team has begun to articulate preferred pedagogies that could facilitate and promote meaningful experiences in physical education (Ní Chróinín, Fletcher & Griffin 2018). Although these authors do not explicitly refer to the construct of physical literacy, we offer connecting points between the five features of meaningful physical education and Whitehead's definitions. Whitehead (2013) suggests that by teaching a physical education program that places the development of student physical literacy as its goal, the teacher should by design, be

providing experiences that are rewarding and meaningful. After examining research on approaches that engage adolescent girls in meaningful and joyful experiences in physical education, Oliver (2013) suggests physical literacy can be fostered by allowing spaces in the curriculum to critically study the process of embodiment (how individuals think and feel about their bodies and how this influences their lives). Building on this, Sprake and Walker (2013) suggest that by adopting a monist outlook on human embodiment, educators are equipped to recapture a vision of school physical education that has a holistic focus, where the notions of 'body as object' and 'body as machine' are rejected, and 'body as self' is preferred (Lloyd 2016; Whitehead 2001). Meaningful experiences in physical education are personal in nature and are influenced by the value students attribute to the discipline and how the learning goals resonate with the learner (Chen 1998). Evidence also supports prioritizing meaningful engagement and meaning-making in physical education (Almond 2013). Meaningfulness in physical education is derived from experiences that are challenging, social, satisfying or fun (Beni et al., 2017; Jakobsson et al., 2014; Smith & Parr 2007). These experiences move individuals more towards adopting a positive attitude towards physical education and an active lifestyle (Teixeira et al. 2012).

Social interaction is also a key contributor to meaningful experiences in physical education and includes the dynamic nature of all relationships in the learning context, not just student to teacher (Beni et al., 2017; Kretchmar 2006). Gibbons and Gaul (2004) revealed that the social support received from both peers and the teacher in PE enhanced meaningful experiences through increased engagement. Furthermore, it seems to be evident that teamwork and cooperation between students in physical education facilitate a positive effect on learning

outcomes (cognitive, social, physical and affective; Casey and Goodyear 2015), student motivation (Fernandez-Rio 2017) and engagement (Smither & Zhu 2011).

Kretchmar's work (2000, 2006, 2007, & 2008) on joy-focused and playful movement has been well documented. Although health-related outcomes feature as an important part of physical education curricula (Armour and Harris 2013; Gallota et al. 2017; Kretchmar 2008), Kretchmar (2008), argues that that when movement is joyful and meaningful, it can inspire students to accomplish things they might not have expected to. Others suggest that a joy-based approach to physical education should take priority (Blankenship and Ayers, 2010). What is also important to note is that Kretchmar (2008) supports the notion that joy-oriented physical education can still promote cardiovascular health, weight reduction and other health benefits. Conversely, evidence suggests that a lack of fun while engaging in physical activities can have a detrimental effect on participation and meaningful experiences (Koekoek, Knopplers and Stegeman, 2009). Meaningful engagement and the desire to participate in physical pursuits is a critical component of the physical literacy construct (Whitehead, 2012), so developing a physical education program that fosters these types of attitudes and behaviors remains paramount.

Empowering Students

Don Hellison's *Teaching for Personal and Social Responsibility Model* (TPSR, 1995) centers on the concept of empowering youth to take more control over their lives and engage in self-development. Pozo et al. (2016) conducted a systematic review of TPSR literature and found four themes representing the essence of the program: a strong teacher–student relationship; empowering students; integrating responsibility into physical activity; and promoting transfer of responsibility (Hellison 2003). Through a correlational analysis, Li et al. (2008), suggested that participants with higher level of personal and social responsibility were likely to enjoy physical

education. Essentially, by empowering students, teachers are helping them develop the intrinsic motivation to participate in physical education. Strategies that empower students promote the development of independence and autonomy. Student empowerment is further illustrated by providing opportunities for making choices, a sharing of leadership roles, and giving students a voice in the program (Li et al. 2008). According to Gano-Overway and Guivernau (2014), student empowerment is a critical ingredient in creating a safe and caring physical education environment. Along with providing opportunities for student agency and ownership, encouraging the development of life skills, attainment of personal goals and engaging in disciplinary actions that maintain a caring relationship, should be part of a physical education program that supports empowerment (Gano-Overway and Guivernau 2014). Furthermore, high school physical education teachers who provide opportunities to their students for class ownership (i.e. students are stakeholders in decision making processes) are helping students feel empowered to be physically active in settings outside of physical education class (Whitney et al. 2017). Students who felt ownership in their physical education classes had greater confidence to go into other physical activity settings and be comfortable engaging in exercise/ activity. There is a direct connection here to the idea of physical literacy being a lifelong journey (Whitehead 2007): knowing that students must carry with them the skills, knowledge and desire to remain active after formal education.

Four Domains of Physical Literacy

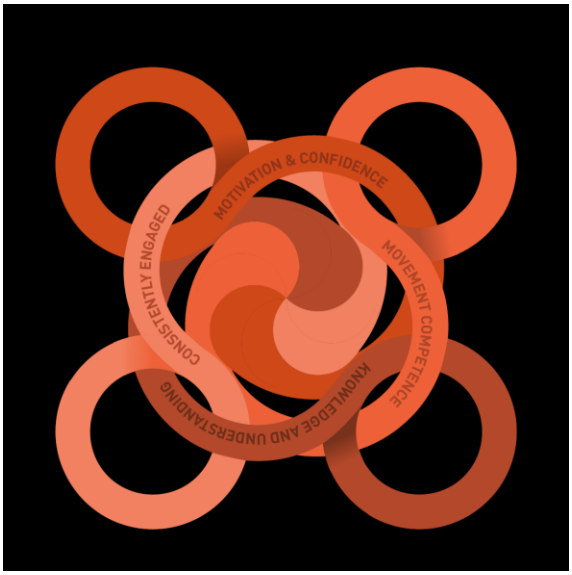


Figure 3.3: Four Domains

As reported in the literature (Dudley 2015; Longmuir et al., 2015; Tremblay & Longmuir 2017; Whitehead 2007, 2010), and illustrated in Figure 4, there are four essential elements of physical literacy that are interconnected and co-dependent: motivation and confidence (the affective domain), movement competence (the physical domain), knowledge and understanding (the cognitive domain), and engagement in physical activities for life (the behavioral domain). The Canadian Consensus statement on Physical Literacy (2015) also reiterates the importance of the 4 domains (called elements in that document). An individual's physical literacy journey can be enhanced and developed through rich and meaningful experiences that are a blending of these four elements. Becoming physically literate is an individual journey (Whitehead 2001, 2007) and observable assessment of such a construct is often deemed problematic beyond the psychomotor domain of observed behavior (International Council of Sport Science and Physical Education, 2013). However, support for a multidimensional physical literacy construct remains (Cairney & Clark 2016; Higgs 2010), addressed in a holistic and cross-curricular way (Dudley, 2015; Lloyd

2016; Whitehead 2001) that is consistent with Whitehead's seminal work on physical literacy (2001). Dudley (2015) argues that the four core elements outlined above can manifest in observable human behavior, which support maintaining the four elements as components in which to anchor a physical education program.

Movement Competence (Physical)

Conceptualized models (Stodden et al. 2008; Stodden & Goodway 2007) have shown that gross motor competence is in a reciprocal relationship with physical activity (Lopes, Barnett and Rodriguez 2016) and indeed lifelong physical activity behaviors (Goodway et al. 2013). Children with a higher level of movement skill proficiency engage more in physical activity, and engagement leads to greater gross motor competence (Lopes, Barnett & Rodriguez 2016). Children with a lower level of movement skill proficiency engage in less physical activity (Stodden et al., 2008). Further, research also points to children's perceived motor competence as having positive implications for their motivation and participation in physical activity (De Meester et al., 2016), and the meaningfulness derived from their experiences (Erhorn 2014; Gray et al., 2008). According to Beni et al., (2017), motor competence contributed to student's meaningful engagement through executing game skills, understanding their performance in relation to their classmates, receiving feedback (from teacher and peers), and negative responses made by other members of their class. Considering this research, motor skill acquisition and refinement, along with perceived motor competence that reflect the motivation and confidence to move (Goodway et al., 2013), movement competence is a key element woven through PLP. Although fundamental motor skill development can misguidedly become the focus of physical

literacy development, it remains a critical component – foundational to an individual's lifelong physical literacy journey (Lubans et al., 2010; Hulteen et al., 2017; Whitehead 2010).

Motivation and Confidence (Affective)

Current research indicates that development of students' intrinsic motivation has been associated with increased intentions to engage in health and skill promoting movement such as exercise (Chen 2010; Standage, Duda, & Ntoumanis 2003), step counts during physical education classes (Lons-dale, Sabiston, Raedeke, Ha, and Sum 2009), and physical activity during leisure time (Gordon-Larsen, McMurray, and Popkin 2000; Hagger, Chatzisarantis, Culverhouse, & Biddle 2003). Further, motivation has been documented as a key component of the contested interpretations of physical literacy (Jurbala 2015), with Whitehead arguing that physical literacy can be described as a disposition characterized by the motivation to capitalize on innate movement potential to make a significant contribution to the quality of life (Whitehead, 2010). The Canadian Consensus statement on Physical Literacy (2015) defines motivation and confidence as "…an individual's enthusiasm for, enjoyment of, and self-assurance in adopting physical activity as an integral part of life" and recognizes its importance in the adopted definition. Including the affective domain recognizes the importance of the emotional aspects of each child: attitudes, self-efficacy, motivation, mood, self-esteem, etc. (Holt & Hannon 2006; Rink 2010; Wall & Murray 1994). Acknowledgement of the affective domain means teachers provide positive class cutures that encourage learners to focus on both individual and social needs (Wall and Murray 1994).

Knowledge and Understanding (Cognitive)

In their critical 2009 position paper on physical literacy, Mandigo, Francis, Lodewyk and Lopez identified ways the cognitive domain can be enhanced through physical literacy. Among these were the terms: "Understanding, communicating, applying and analyzing" and "strategically" (p 7-8). Each of these statements fall clearly in the cognitive domain and recognize the critical role cognition plays in lifelong movement. The first statement advocates for a vocabulary of movement as well as consistency with other academic subjects. In other words, PE IS academic, affective and cognitive! Strategy can also be referred to as decision making and although certainly found in games, can also be crucial to dance, outdoor activities and other dimensions. Knowledge is a critical component of skilled motor performance (Bouffard, Watkinson & Thompson 1996; Dudley, 2015; Tremblay & Lloyd 2010; Wall 2004; Wall, Reid & Harvey 2007). Both declarative and procedural knowledge are important to motor learning and the cognitive aspect emerges in Teaching Games for Understanding as well. Knowledge and understanding also influence physical activity participation (Aldinger et al., 2008; Harvey et al., 2009; Tse, 2009) and physical fitness (Tremblay and Lloyd 2010; Young, Haskell, Taylor, and Fortmann 1996). According to Hattie (2009) when students can regulate or use metacognition (apply knowledge and skillfulness) to their learning, they eventually become their own teachers.

Consistently Engaged (Behavioral)

Enhancing our understanding of children's engagement in physical activity and aggregated motivation and confidence, knowledge and understanding, and physical competence for physical activity would enable us to better support the development of childhood physical literacy (Longmuir et al. 2015; Tremblay, Collier and Lloyd 2010). Dudley (2015) identified "motivation and behavioural skills of movement" (p 238) as one of the four core elements of

physical literacy. He goes on to describe how the four elements 'nest' into each other like Matryoshka dolls in that they interact and influence each other. We support this metaphor and would add that the behavioural domain is the 'action' that crosses each other the other four domains. Therefore, the goal of physical education is for students to be moving, thinking, feeling and doing (behavioural) individuals. This represents the commitment to put what is learned into action and aligns with Whitehead's representation of the existentialist nature of physical literacy (2010), in which individuals "…value and take responsibility for maintaining purposeful physical pursuits/activities throughout the lifecourse".

Conclusion

The growth of physical literacy requires a holistic engagement encompassing physical capacities embedded in perception, experience, memory, anticipation and decision making (Whitehead 2001). As an aspect of human potential integral to a fully realized human existence and influencing much of life as habitually experienced, the achievement and exercise of physical literacy plays a very significant part in the development of self-realization, self-confidence and positive self-esteem (Whitehead, 2001, 2007). Indeed, the theory is transformational as it pertains to physical education, education generally and the development of the whole child. Educators can be excited regarding the potential of physical literacy for holistic development, life-long active participation and learning. We believe that students' physical literacy can grow and flourish as a result of carefully designed experiences in physical education. However, such programming, pedagogy and practice doesn't just 'happen'. It needs to be intentional, guided, and informed by evidence.

Physical Literacy Praxis bridges theory and practice to provide an evidence-informed framework that educators can rely on to deliver experiences rich in the tenets of physical literacy. The framework has been developed over four years with extensive review of the literature, practical discussions with educators and a small pilot study (paper in progress) at the secondary level – all of which informed the current iteration of the framework. Our hope is that both educators and researchers take up PLP in their work. We encourage teachers to use PLP as a guide to inform their practice and enhance the experiences of their students. We encourage academics to study the framework and add to the body of evidence. Moving forward, we will share the framework through podcasts, blog posts and peer-reviewed journals to increase access and implementation. Findings from future studies and the iterative process of research to practice may result in necessary adjustments to PLP. Indeed, those refinements are critical to its future success and credibility in the eyes of physical educators and those who believe that enhancing the physical literacy journey of school-aged students is a worthy goal for physical education.

Chapter 4: Applied Physical Literacy in an Urban High School

Study Design and Context

Using the draft framework, this case study focused on the process of bridging theory and practice. With research and literature highlighting the paucity of evidence supporting the application of physical literacy in K-12 schools, coupled with a passion for teaching and learning, the notion of praxis has tremendous appeal. For Aristotle, praxis was guided by a moral disposition to act truly and rightly; a concern to further human well-being and the good life (Smith, 1999 & 2011). The plan and resulting design of the draft evidence-informed theoretical framework began with questions on the actualization of physical literacy, and we began to start thinking about these questions in terms of what makes for human flourishing, particularly in the key adolescent years. Based on findings from current research, we knew that work needed to be undertaken so that physical literacy would not just become a powerful metaphor that captures the imagination and a rebranding of plain old physical activity (Jurbala, 2015).

Our commitment to student well-being and to the future of physical literacy in Alberta, provided the impetus to engage in this journey deeply as committed thinkers and actors. Throughout the course of this case study, there was a continual interplay between thought and action, altering the course (means and ends) ever so slightly each time. This was not simply *activism* as Freire describes (Taylor et al. 2014), it became a creative and unified process that involved observation, interpretation, understanding and application. It was messy at times, very much in keeping with the day-to-day happenings in high school classrooms. Embracing uncertainty and being flexible was paramount. We were determined, however, to uncover a

narrative over the course of the school term, reacting to the expected perturbations of high school life.

Purpose of the Study

The purpose of the study was to examine the implementation of physical literacy in the school setting, specifically a Grade 10 physical education context. The study explored how an evidence-informed theoretical framework of physical literacy could work. The essential question was: *How does an evidence-informed framework for practitioners' implementation of physical literacy impact the delivery of physical education?*

The key objectives of the project were a) to explore how teacher's knowledge, skills, attitudes and values towards physical literacy change as result of embedding features of the PLP framework into their practice; b) examine how the PLP framework could live at the high school level and if it could facilitate change in teacher practice; c) understand what was needed so that teachers could be effective in engaging students in embodying the tenets of physical literacy; d) revise and review the model based on our findings; and e) discuss how these findings could be communicated with other teachers of physical education, consultants and other key stakeholders with the hope that the model could be further researched across grades in a variety of Alberta's schools.

The study was conducted in a large urban high school (Grades 10-12) in the province of Alberta, Canada. The school has a population of approximately two thousand students, many of which are immigrants or first-generation Canadians. Students come from more than 83 cultural backgrounds and speak over 73 languages (school newsletter from the spring of 2018), and a number of the school's surrounding neighborhoods are found in the bottom third of the city's household income profiles (2001 census information available only for household income and

labor status). The school offers a wide range of programming to meet the needs of their diverse population:

- including gender-segregated (self-identified) and co-educational Physical Education 10 classes.
- co-educational Physical Education 20 and 30 courses.
- Functional Fitness 10, 20 and 30, which are school-designed five-credit courses composed of five Health, Recreation & Human Service one-credit courses found within Alberta's Career and Technology Studies program. These functional fitness classes focus on the development of human conditioning and performance).
- Sports Medicine 10, 20 and 30, which has a similar structure and composition to Functional Fitness 10, 20 and 30, but focuses on athletic therapy and rehabilitation.
- 'Healthy Living' 10 and 20, courses that has been in operation for three years at this particular high school, offering a different pedagogical approach using Alberta's K-12 Physical Education program of studies. These courses include more time allocated to individual health-related fitness activities structured in a non-competitive environment.

This novel approach to programming leverages research that claims most female students prefer fitness, dance, non-contact and non-competitive and cooperative or social activities (Hill & Cleven, 2005) to traditional team sports, with competitive full-sided games appealing mainly to highly skilled students (MacDonald, 2015). The diversity of health, physical education and sports science programming at the school aligns with evidence that supports providing structural

choices for both female and "less physically skilled" students; providing meaningful choices in the curriculum; and, allowing teachers to create challenging and inclusive programs that meet the needs and interests of the student population (Garn, Ware, & Soloman, 2011; MacDonald, 2015; Ntoumanis, Pensgaard, Martin & Pipe, 2004; Portman, 2003).

Methodology Design & Data Collection

Case studies enable the inclusion of many different types of information as data – each with its own rationale and purpose (Yin, 2009). This particular study uses case study methodology in order to utilize a variety of data collection methods with the goal of uncovering a detailed and purposeful narrative. Yin (2009) defines case study research as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clear; and in which multiple sources of evidence are used. As Day-Ashley (2012) articulates, case study is limited to a particular representation given in context and understood in that context. Therefore, there is limited potential for case studies in terms of generalization. However, by using this method, we embraced a certain degree of methodological eclecticism, including asking people questions, observing what happens, and analyzing documents (Day-Ashley, 2012).

Stake (1995), describes the case study as having four characteristics: holistic, empirical, interpretative and emphatic. Case studies therefore provide an opportunity for the researcher to gain a deep holistic view of the research problem, and may facilitate describing, understanding and explaining a research problem or situation (Baxter & Jack, 2008). This preferred methodology allowed us to examine how changes occur, rather than just cataloguing what happened throughout the process of study. The result of embracing this methodology hopefully moved us more towards a rich and profound interpretation of what occurred in the research.

The scope of this research study was intended to be relatively small, with only one high school involved and three teachers teaching very different Grade 10-level physical education classes: one male 'regular' PE course taught by male teacher; one female 'regular' PE course taught by a female teacher; and one 'Healthy Living' course taught by a female teacher. The participating teachers, with guidance and support from the researchers, implemented all elements from the draft *Physical Literacy Praxis Framework* (Fig 3.0) in their respective Grade 10 level class over one high-school term (semester). The framework, which specifically focuses upon delivering quality physical literacy-enriched experiences, was intended to compliment Alberta's K-12 Physical Education program of studies which is the mandated curriculum in Alberta's schools. Consistent with case study design, a variety of data was gathered over the time period of one high school term:

Teacher Interviews and focus groups

Two audio-recorded semi-structured interviews with open-ended questions were conducted with each of the three teacher participants. Interviews were conducted by the same researcher (a graduate student trained in ethics), and in the participating school. There were no restrictions on dialogue and participants were encouraged to talk deeply about their knowledge, attitudes and experiences. The first interview took place early in the term to: (a) establish a profile outlining participants teaching experiences, (b) understand participants' philosophical approach to teaching physical education, (c) explore their knowledge of physical literacy, and, (d) investigate their initial feelings towards the PLP framework and whether or not it could fit with their current pedagogical approaches to physical education. The initial interviews varied from 29 minutes to 40 minutes in length with participants answering targeted questions, with the interviewer able take the conversation to a deeper level when necessary. The second interview

took place during the final week of the school term with questions about: (a) their experiences with the designated class throughout the term, (b) how effectively they were able to implement components or elements of the draft framework in the class over the duration of the term; and, (c) their suggested adjustments to the draft framework moving forward. The final (exit) interviews varied from 33 to 53 minutes in length.

Observations and reflections

Classroom observations took place three times periodically throughout the school term. Researchers had the opportunity to observe each eighty-two-minute class in its entirety. During the rounds of observations, field notes were taken on charts outlining components of the framework. Amongst other recordings, the field notes included direct and indirect references to the framework, the interaction between the framework's components, and any teacher or student-initiated event or interaction that featured aspects of the physical literacy concept. As well as field notes, non-recorded conversations with the three educators around their perceptions and experiences were noted, initially paying particular attention to their understanding of the framework, and their ability to transfer theory into practice. Together, the interviews and observations served to examine the teachers' knowledge and understanding of physical literacy, while allowing the researchers to dig a little deeper into the possibility of transforming physical education practice through the PLP framework.

Teacher debrief sessions following observation days

The three teacher participants graciously allowed for debrief sessions to take place shortly after classroom observations either during their prep time, lunch time, or upon completion of the school day. The debrief sessions were fairly informal (usually lasting about 15 minutes or so), as the researchers discussed their observations and asked questions to each

participant often around pedagogical approaches, student engagement, and particular aspects of the framework.

Documents

A variety of documents and artifacts were used by the teacher participants in their classroom practice and were made available throughout the course of the study. Teacher participants often provided lesson plans and other resources to support teaching and learning, but no journals or unit plans were documented for analysis. In most cases these lesson plans used a specific template that includes lesson objectives tied to curricular outcomes; equipment used during the course of the lesson; activities that supported the objectives; and classroom-based assessments that were largely formative in nature.

Data Collection Summary (September to January):

Order Sequence	**Data Collection**	**Duration and Purpose**	**Timeline and further details**
Round 1	Initial individual semi-structured-Interviews (September)	• Develop relationships with the 3 participants • Review parameters of the study • Discuss ethical considerations • Interview each teacher and create participant profile based on interview	Group round table discussion: 45 mins (approx.) Teacher participant #1 interview 33:41 mins Teacher participant #2 interview 40:01 mins Teacher participant #3 interview 33:32 mins *data collected using Dictaphone app -data transcribed to field notes
Round 2	Researcher(s) Field Observation and notes collection #1 (October)	• Observation of teachers in their classroom context. • Field notes taken • Review of previous transcripts • Debrief with three teacher participants	3 classes (PE 10 'Male' class, PE 'female' class, Healthy Living 10 class) spanning 82 minutes each
Round 3	Researcher(s) Field Observation and notes collection #2 (November)	• Observation of teachers in their classroom context. • Field notes taken • Review of previous observations	3 classes (PE 10 'Male' class, PE 'female' class, Healthy Living 10 class) spanning 82 minutes each

		• Debrief with teacher participants	
Round 4	Researcher(s) Field Observation and notes collection #3 (December)	• Observation of teachers in their classroom context. • Field notes taken • Review of previous observations • Debrief with teacher participants	3 classes (PE 10 'Male' class, PE 'female' class, Healthy Living 10 class) spanning 82 minutes each
Round 5	Individual semi-structured interviews (January)	• Exit individual interviews • Verification of observations and transcripts • Final thoughts and reflections	Teacher participant #1 interview 44:41 mins Teacher participant #2 interview 44:59 mins Teacher participant #3 interview 53:24 mins *data collected using Dictaphone app -data transcribed to field notes

Participant Profiles

Teacher Participant #1 - Ella

After moving to Canada when she was a young child, Ella is new to the profession (at the time of writing this article, she has recently completed three years of full time teaching), but has already experienced more of a leadership role within the Health and Physical Education department. She recently fulfilled the role of acting Department Head of Health and Physical Education, as the former Department Head moved into an Assistant Principal position at the school. After already completing her first degree in Kinesiology, Ella went on to complete an after degree in Education, with a Physical Education major (concentration in physical education). During the initial conversation, it became clear that she is a very passionate and knowledgeable physical educator, promoting and role modeling the principles of healthy active living with all of her students. We observed Ella connecting consistently with the large female immigrant population at the school, understanding their unique circumstances, and the challenges of coming to a new country. She acknowledges the accumulating research that reveals the decline in school physical activity participation by females in later adolescence (Eime et al., 2016) perhaps

explained by a number of factors including changes in life priorities and time demands, shifting towards academic achievement and paid employment (Eimer et al., 2010), and a lack of support from families (Eime et al., 2015, Wheeler 2012), friends, and teachers (Casey et al., 2009), and articulated her desire to re-engage females in school physical education, physical activity and sport participation. Substantial research has drawn attention to the significance of teachers in constructing gender relations through their pedagogy (Brown, 1999; Brown and Rich, 2002; Evans et al., 1996; Rich 2004; Wright, 1997), and observed this consistently in her class, and discussed this narrative at length during informal conversations throughout this study. Despite Ella's limited exposure to professional learning and professional dialogue around physical literacy prior to engaging in the study, she had a solid understanding of most of the construct's principles articulating that "knowing how to move your body to its fullest potential [was one of the goals of developing physical literacy] and that having a solid foundation of movement skills built confidence [to engage] in activities that [students] could take part in over their lifetime." She also felt that "being durable", and "engaging in regular fitness [activities]" developed "a set of skills where students could determine the types of activities they could take part in, and take responsibility for their activity levels and [personal health and well-being]."

Teacher Participant #2 - Claire

This educator was also quite new to the profession, having just completed her fourth year as a secondary school teacher. She completed a combined Education and Physical Education program at university, with a major in physical education and a minor in biological sciences. Claire is Canadian born and was raised in the area. A passionate and particularly knowledgeable physical educator, she also has significant knowledge and experience in the field of sports science and elite-level coaching and sport participation (currently holding a provincial level head

coaching role). Claire's short teaching career has also taken her to northern Alberta, where she was involved in a school that offered a variety of sport academies. Her teaching portfolio during that time involved teaching physical education and academy classes. During her initial interview she highlighted the importance of establishing a strong relationship with her students, viewing students as stakeholders in the classroom environment giving them more choice and voice in the structure of her classes. Theoretically Claire emphasized the importance of students developing a solid base of fundamental movement skills from which to draw upon, seemingly understanding the research that links having a repertoire of fundamental movement skills (FMS) and physical activity participation (Barnett et al. 2016). Recent research highlights that being competent in FMS, is associated (and predictive) with not only physical activity (Holfelder & Schott, 2014; Lubans et al., 2010), but also fitness (Cattuzzo et al., 2016; Lubans et al., 2010), healthy weight status (Lubans et al., 2010), and cognitive and academic outcomes (Haapala 2013). Claire's philosophical approach to teaching physical education also included her passion for moving students that may have had limited exposure to a variety of physical activities in diverse environments, towards sampling a variety of sports and physical activities at a recreational level as early as possible. During her initial interview she referred to her legacy of teaching in northern Alberta as successfully getting students to play a "variety of school and recreational sports" – a personal victory, sweetened by her opinion that "hockey was a cult up there [in northern Alberta]", with the many students enrolled in hockey often only playing that activity year-round. Her knowledge of physical literacy and its components prior to engaging in the study was the most substantial of the three teaching participants, but interestingly she spoke of gaining "a deeper understanding, [that] she could use to [enrich] student experiences in her physical education class".

Teacher Participant #3 - Allan

Allan just completed his fourth year as an educator, having graduated with an after degree in Education after completing his first degree. Unlike the other two participants in the study, he minored in physical education and majored (concentration) in social studies. It is noteworthy that the class involved in the study was in fact his only physical education class for the semester, but he "[expressed interest] in teaching more physical education, as that's where his passion [lay]". Allan, although often referring to his Caribbean roots, was raised in the local area and was a former student at the school. He currently lives in the surrounding community, and certainly demonstrated extensive knowledge and an appreciation of the diverse social and cultural fabric of the school community. His knowledge of the school's history and his value of school tradition came through when describing his passion for education and for teaching physical education. Like Claire he currently coaches at an elite sporting level and is heavily involved in growing the sport at the grass-roots level in the community. In addition to his work with children and youth in sport, Allan formerly achieved professional status as a player prior to coming back to the city to complete his after degree in Education.

During his initial interview, Allan spoke about preparing students to "live a long, healthy, and fulfilling life", emphasizing the importance of understanding and demonstrating positive health habits and prosocial behaviors. Furthermore, upon digging a little deeper and discussing teaching physical education, his philosophical orientation unknowingly articulated more of a Positive Youth Development (PYD) approach (Neely & Holt, 2011), emphasizing the promotion of competencies which can include, among other things, life skills and values like fair play, leadership, goal setting, and teamwork (Camire et al., 2009; Camire et al., 2014, Gould et al., 2006; Larsson 2000). Throughout the discussion Allan championed physical activity, and more

specifically physical education, as a possible venue for developing such life skills (Hemphill 2014; Weiss & Wiese-Bjornstal, 2009). He felt that students should understand the importance of contributing to the local community (and how involvement in sport and physical activity can assist with this), and that they should have a sense of time, place and ancestry. Although Allan's knowledge of physical literacy was limited, he "valued long-life involvement [and] enjoyment in physical activity and sport" and firmly believed that his physical education class was a venue in which the motivation and desire to be active for life could be fostered.

Data Analysis

Before delving deeper into analyzing the data, I feel it pertinent to disclose how my educational background and prior relationships with the participants through my time serving as an educator in the same District, Health and Physical Education Consultant, and working with Alberta Education as a Curriculum Manager of Wellness Education made it easier to communicate, conduct interviews and collect field notes with participants. My history with the participants meant that I already had established a rapport with all three participants through years of presenting professional learning at schools where they had been employed, attended Health and PE provincial and national conferences where they were also in attendance, and been part of PE curriculum meetings with them as a Department Head in high school. Keeping this in mind, I had to be conscious of my own subjectivity during the year-long study, and in the subsequent analysis process. I understand that my own voice and positionality are intertwined with the data in this study, in that the codes and themes that emerged from the data were ultimately influenced by my own education background and experiences as a physical educator in a high school setting. Due to sharing a common educational language and to some degree a similar educational lens as the three participants, I do acknowledge that the interview process could have been more

robust, as both participants and I have prior knowledge on much of the content discussed. To achieve confirmability, I considered my own biases and beliefs towards the study and have attempted to capture these.

The opportunity presented allowed us to engage with trained physical education teachers on a deeper level about their understanding of physical education curriculum and pedagogy, and with it, their knowledge and understanding of physical literacy as a concept. We hoped to determine if it had currency amongst these three high school physical educators, and if not, was it a lack of deep understanding or perhaps confidence that prevented its infusion into their activity spaces? Or were there other factors barring the door to its planned and purposeful inclusion into day-to-day physical education classroom experiences?

All forms of data collected (transcriptions of semi-structured interviews, field notes collected from observations and conversations, and teacher-provided documents) were initially recorded on large sheets of chart paper. The decision was made to conduct a thematic analysis, following processes outlined in Braun & Clarke's (2006) step-by-step guide. Thematic analysis is a method for identifying, analyzing and reporting themes or patterns in data, offering an accessible and theoretically flexible method to analyzing qualitative data (Braun & Clarke, 2006), particularly noting that the author is in the infancy of his qualitative research career. There are, of course, diverse, complex and nuanced approaches to analyzing qualitative data (Holloway & Todres, 2003), however, the author believed that the freedom associated with this approach (with the necessary structural components) could assist in providing a rich and detailed account of the data in this case. Understanding that the pre-existing draft PLP framework was already in place, the more analyst driven 'theoretical' thematic analysis was proposed. This would allow the author to code according to the current draft composition of the framework and

the researcher's analytic preconceptions (Braun & Clarke, 2006). The resulting findings would still help inform any changes to the framework.

The Thematic Analysis Process

Getting familiar with the data

All forms of collected data (data corpus) were examined repeatedly for familiarity, knowing the importance of being 'immersed' in the content (Braun & Clarke, 2006). The three participant's initial interviews were listened to in their entirety, and then listened to a second and third time to ensure that there was an understanding of the breadth and depth of the content. Raw data (data items) from the interviews were placed in a chart that included each component of the *Physical Literacy Praxis Framework* (Trained Educator, Curriculum, Culture, Empowerment, Meaningful Experiences, Movement Competencies, Motivation and Confidence, Knowledge and Understanding, Consistently Engaged) with the addition of a miscellaneous section. This miscellaneous section contained data that the author did not initially recognize as being relevant to the PLP framework, but wanted to ensure that all data (data corpus) was available in the case that any data related to the findings from the process of thematic analysis needed to be further examined. This deliberate process of reading, re-reading, listening multiple times and documenting initial ideas into the PLP framework chart followed suite for the remaining methods of data collection (field notes from the three observation days, transcriptions from the debrief conversations, documents collected from the participants throughout the study, and the participants' exit interviews). The author then went through the process of removing any item that (at this juncture) was deemed not to be pertinent within the scope of the study, in the quest to establish a data set from all of the data items collected. In this case, the data set was identified by an analytic interest, which was relevant data associated with the PLP framework. The data set

then became all instances in the corpus where material judged to be referring to the PLP framework was evident (Braun & Clarke, 2006). Once the entire data set was established, the process of initial coding began.

Generating Initial Codes

With the process of coding being an integral part of a thematic analysis (Miles & Huberman 1994) it was critical that the data was organized into meaningful groups (Tuckett, 2005). As previously mentioned, the data items were examined, and initial codes (*Fig 4.0 in the appendix)* were provided and placed into the PLP framework chart. Oftentimes, data items were found to have implications for several components of the PLP framework. For example, all three teacher participants discussed the importance of being a role model, or role-modeling for their students. These points of discussion had implications for three components of the framework: as a trained educator; the culture that surrounds an educator's approach to teaching and learning; and student motivation and confidence levels. When data items that were initially coded crossed into several components of the framework, it became easier to start exploring these items as potential themes. The initial coding was conducted manually, by writing notes on all of the texts that were to be analyzed and by using highlighters and different coloured pens according to components of the PLP framework. A different colour was used for each component of the PLP framework so that the author could read and re-read data with ease. 'Post-it' notes were used to identify segments of data or direct quotes that were found interesting, or novel, and that were needed to 'stand out' so the author could revert to and reexamine when needed. Initial codes were identified, and then were matched with data extracts that demonstrated that code. This was a time consuming, and often arduous process. It was important in this phase to ensure that all

actual data extracts were coded, and then collated together within each code (Braun & Clarke, 2006). Below is an example of a data extract and what is was coded for:

Data extract	**Coded for**
"I think that, as a teacher, you must have a deep knowledge and understanding of Physical literacy to produce quality lessons that support student growth in all areas of the concept [physical literacy]" (participant #2, observation #3 debrief)	Knowledge of PL (*TE1) TE=Trained Educator

Searching for Themes

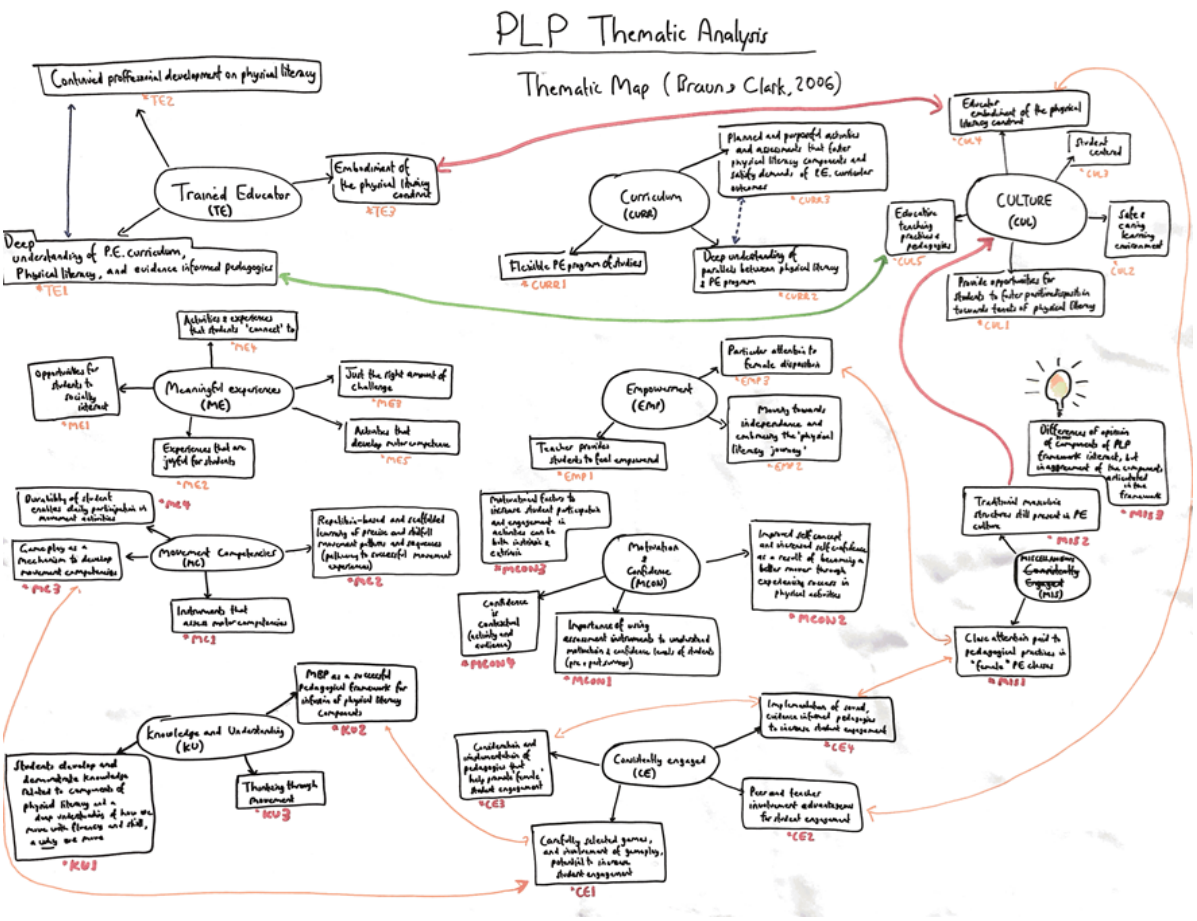
Once codes were allocated and all data items and extracts were accounted for (the entire data set was re-checked to ensure that all nothing was initially found as being relevant to the study was omitted by mistake), the search for themes began. As Braun & Clarke (2006) suggests, it was then important to start collating codes into potential themes, and then gathering all data relevant to that particular theme. This was a chance to examine each code three dimensionally, and make some informed judgements based on the contents of the entire data set, the author's knowledge of each participant in relation to their understanding of the PLP framework, and the author's knowledge and experiences with physical literacy and purpose of this study. Without trying to lose any important meaning or oversimplify any of the initially coded data, the process of collating coded data to form initial themes *within* each component of the PLP framework was then set in motion. The author also searched for themes within the miscellaneous category of the data, to see if there were implications for the framework. These initial themes were then coded a second time, so that the author could start to see any trends emerging from each of the components of the PLP framework. For example, the 'culture' component of the PLP framework

provided perhaps the widest scope of material in relation to physical literacy. The quest was to further understand whether this was the author's preconceptions of what *should* fit into the 'culture' category or was the wider scope of this category present in the data items. This notion in fact wasn't binary. What emerged from a re-examination of all data items pertinent to 'culture', was that some assumptions during the data analysis were made by the author, and that the term 'culture' in relation to the educational environment can be often nebulous, elusive and difficult to define (Hinde, 2004), with various educators often articulating entirely different criteria from one another.

Reviewing the Themes

The reviewing of themes began when the researcher had devised a set of candidate themes (Braun & Clarke, 2006), and it involves the refinement of those themes. This was an opportunity to check if there was enough data to support each theme, or if the data was too diverse, and, if two themes could eventually could be collapsed into one, without losing any key features of a theme, or if an initial theme needed to be expanded into two distinct themes, supported by the data. At this stage, an initial thematic map was created illustrating the new set of themes that fell under each component of the PLP framework. This provided a visual organizer, so that the author could better see the links between themes within and across each component of the PLP framework. The initial thematic map can be seen below:

Initial Thematic Map (Braun & Clarke, 2006)



As can be seen when looking at the initial thematic map, themes were coded for a second time under the umbrella of the framework. After establishing a set of themes using a semantic approach, where the themes are identified within the explicit or surface meanings of the data (Braun & Clarke, 2006), the analytic process involved a steady progression from description, where the data have simply been organized to show patterns in semantic content (and then summarized), to interpretation, where there is an attempt to theorize the significance of the patterns and their broader meanings and implications (Patton, 1990), often in relation to literature that supported the physical literacy construct (Dudley, 2015, 2018; Ennis, 2016; Jurbala, 2015; Longmuir, 2013; Whitehead, 2001, 2010). The reader will notice on the initial thematic map, that the miscellaneous themes, currently sitting outside the umbrella of the PLP framework are still in play.

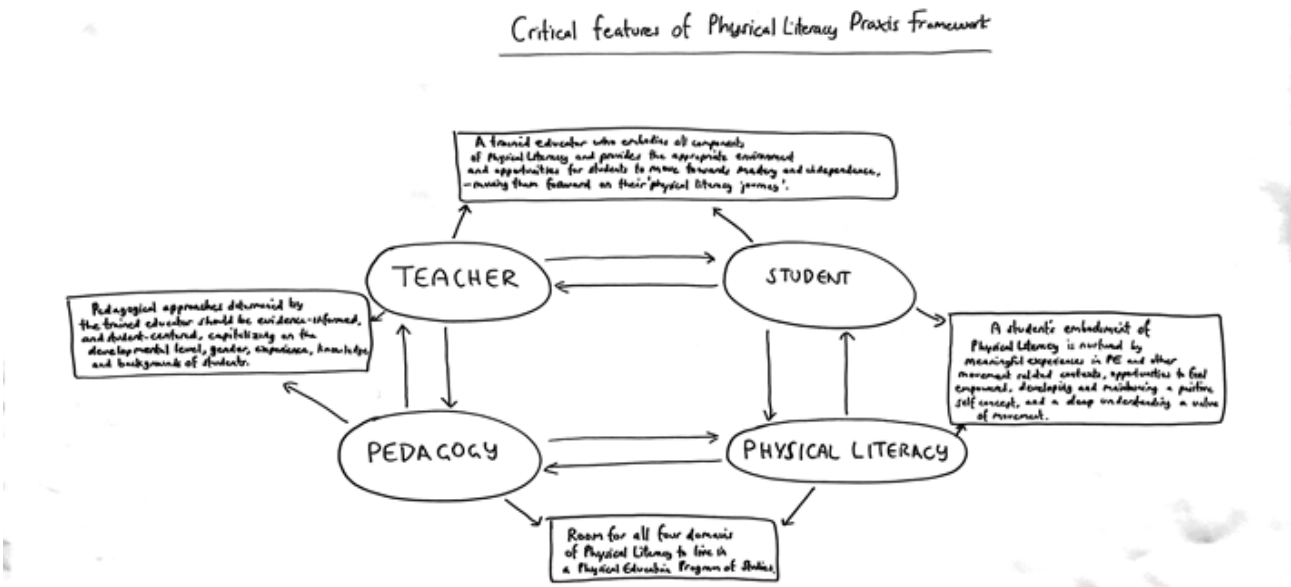
Defining and Refining themes

At this point, Braun & Clarke (2006), suggest defining and further refining the themes that will be presented for analysis, and analyze the data within them. So, this presented an opportunity to place the current themes and the data extracts side by side, to see if what was revealed in the data supported each theme found in each component of the PLP framework, and to ensure the findings matched the narrative revealed in all aspects of the collected data. Again, this was a labour intensive process, and the initial thematic map was slightly adjusted based on some of the volume of data extracts attributed to particular themes. The author then began to identify the 'essence' of what each theme was about, and connecting this back to current literature, as well as began to think about the links *between* each component of the framework (overall themes) and then determining what aspect of the data each overall theme captured.

At this stage, it was critical to not deviate too much away from the narrative and impose the author's own suppositions and biases. The process of refining themes, looking for connections across the component 'boundaries' of the PLP framework, and ensuring that all themes didn't try to accomplish too much, or to be too diverse and complex (Braun & Clarke, 2006), was an iterative one. A detailed account of each refined theme, and what the author describes as the critical features of the PLP framework is outlined in the results section of this chapter. Below is a refined thematic map, with descriptors that link each refined theme. This provides a visual key to the PLP framework, and with it reveals the core of the narrative derived from working alongside the three participants over the course of the school term. The final step in Braun & Clarke's (2006) step by step process is the production of a written report (in this case, this chapter's results section), which provides a complete commentary on the final analysis,

complete with "compelling extract examples, and [a] final analysis of selected extracts [that relates] back the final analysis to the research questions and literature" (p.87).

Final Thematic Map of the PLP framework



Results & Discussion

After conducting initial interviews with the participants, the researchers began working to familiarize each participant with the draft framework of Physical Literacy Praxis (PLP) [*see Fig. 3.0 in the appendix for diagram of the draft framework*] which included gaining a deeper understanding of prior content knowledge from each participant regarding components of the model; asking questions about where they saw particular aspects of the framework fitting with their current pedagogical practices and how they could envisage the manifestation of each component in some of the activities that they had planned for the term; and, where they felt they needed professional development in order to gain a greater understanding of particular

components. All three of the teacher participants understood the goal of the draft PLP framework, and agreed, based on the definition of physical literacy we provided (IPLA Canadian consensus statement June 2015), that offering evidence-informed physical literacy enriched activities would be beneficial for all students in their classes. Interestingly, components of the framework that seemed to draw the most queries and interest from the teaching participants was when we began *discussing meaningful experiences in physical education* and when we discussed *student motivation and confidence:* particularly the assessment of the the two components (how they can be measured and observed), which is not currently addressed in Alberta's K-12 Physical Education program of studies.

Each of the participants could identify components of the PLP framework they felt 'fit nicely', 'were already emphasizing with many of their classes', and 'felt that they had a good understanding and grasp of'. They understood the value of using an evidence-informed curriculum as the basis for instruction, with outcomes that could be demonstrated by students and assessed by educators. When discussing Alberta's K-12 PE curriculum, all three had a clear understanding of the program's philosophical orientation, its general outcomes, and examples of classroom-based assessments (both formative and summative) they could use to drive their instruction. Participants prioritized establishing a safe, welcoming and caring learning environment at the beginning, and indeed throughout the term, and that developing a culture of "persistence when faced with challenges…initiative [and]… independence was important for maturing youth" (Allan– informal conversation, observation #2). Experts argue that an individual who embodies the concept of physical literacy has a love of physical learning, seeks physical challenges, values physical effort, and persists in the face of physical obstacles (Dudley, 2015).

What was proposed by the researchers prior to engaging in the study, was that 'trained' physical educators would be more suited to effective delivery of physical literacy-rich experiences consistently in a physical education class. Lewis & Leidl (2015) suggest that, as physical educators, what we do in terms of creating and fostering a learning environment that supports physical literacy can have a profound influence on students' physical activity in their lifetime. It impacts not only the physical but the mental, social, cognitive, spiritual and affective domains. This is a very important element to consider when it comes to working with at-risk and underserved youth in our schools and communities (Leidl & Lewis, 2015). Research does substantiate that physical education specialists who have received more intensive and subject-specific training than generalist teachers are more likely to teach all areas of a physical education curriculum and deliver PE confidently and accurately (DeCorby, Halas, Dixon, Wintrup & Janzen, 2005; Faulkner et al. 2008).

Moreover, PE specialists or educators with appropriate PE training, have also been found to teach longer lessons, spend more time developing skills, provide more opportunities for more moderate to vigorous physical activities, and use state-of-the-art physical education teaching practices (Davis, Burgeon, Brener, McManus & Wechsler, 2005; Faulkner et al., 2008; McKenzie et al., 1995, McKenzie, Sallis, Kolody, & Faucette, 1997; National Institute for Child Health and Human Development Study, 2003; Sallis et al., 1997). This case did not examine the delivery of physical literacy-rich content by educators with no educational training in physical education. However, the authors suggest that future research comparing the delivery of physical literacy-rich material by PE specialists and non-PE specialist or generalist educators, which have enjoyed consistent continual professional development regarding physical literacy, would be of great interest.

As previously mentioned in this chapter, two sets of semi-structured interviews (initial and exit) were conducted for each participant, along with three full days of observations (one 83-minute class per participant) accompanied by short fifteen to twenty minute debriefs. On top of the interview transcripts and field notes, each teacher provided a short, written lesson plan (or in a couple of cases, provided time for dialogue regarding what the plan of action was for that particular lesson). The observation days were busy, as the three participants often had coaching commitments and faculty meetings during the visit, adding to the frenetic pace of life in a high school.

Findings for Each Component of the Physical Literacy Praxis Framework

Before discussing what the thematic analysis revealed regarding the draft PLP framework, it is pertinent to take a closer examination of findings for each of the framework's components. This process provides an insight into deriving themes from the total data set, and from the data extracts within, and how those themes were refined to form a deeper analysis.

The Trained Educator

It was clear that an educator with a **robust understanding of physical literacy** [1]and how the concept could be translated into a series of rich learning experiences was beneficial for students' understanding and embodiment. All three participants had knowledge of the concept, but only two consistently displayed, both in their planning and delivery, a 'deeper' understanding of how the tenets of physical literacy could coalesce to form learning experiences, and from that, conversations (teacher to student) that facilitate student growth. Moreover, it became apparent in the observation debriefs that some activities were intentionally developed by participants with the goal of developing tenets of the PL concept and attentive to multiple domains, while others

[1] Bolded terms point the reader's attention to codes derived from data.

hoped to achieve those aforementioned goals, without the intentional planning. It was clear that there was a need for activities and other opportunities that supported students on their physical literacy journey, but a need for **evidence-informed instructional strategies and processes** that supported effective teaching and learning:

> You have to be well-organized...be planned and prepared... have 'presence' (...command respect and attention) with students...and have strategies that support good teaching and student learning. If you don't have these qualities, what you try to achieve with physical literacy goes out the window (Allan, observation #1 debrief)

All three participants on various occasions throughout the study felt that **continued professional learning regarding physical literacy** and how it could 'live' in a high school classroom would be hugely beneficial to their decision making around appropriate pedagogies. The more the concept was discussed, the more they acknowledged their own gaps in knowledge and understanding, but also their willingness to 'dig-in' to their pedagogical practices:

> I'm beginning to realize that I need to know more about physical literacy, or that I should know more about physical literacy. I've been to some PD sessions [put on by the Board], and they're great, but learning doesn't always translate into practice...although [looking at the framework] ...lots of this goes into my PE instruction...further PD would always help. (Claire, observation #2 debrief).

As previously mentioned, being a **role-model** as a teacher of PE, and role modelling some of the qualities of a physically literate individual, continued to surface throughout the study. The author witnessed tangible 'energy' changes in the class when the instructor became more involved in the physical activities (Field notes from observations 1 & 3) such as increases in the tempo of

games; increased in the perceived 'effort' of students; and, perceived increases in students' 'excitement' levels:

> The girls always say 'Miss L, we like it when you run with us...if you can do it, then so can we', I think it's super important to role model being active and let them see you enjoying different types of activities. (Ella, Exit interview)

Perhaps not surprisingly, being an educator who embodies physical literacy shows up in findings across and within components of the framework and was deemed to be a key theme by the author as the thematic analysis moved forward. The perception from all three participants, was that the embodiment of physical literacy's critical attributes (Dudley, 2018) during activities throughout the term increased their **credibility** with students, as they established a **'presence'** within the movement spaces:

> My students seemed not only to trust me more as a PE teacher, but I became more credible in their eyes [when I joined in with them]. I was part of their experience. (Ella, Observation #2)

Participants noted that it was imperative that they became 'involved' in the PE environment, showcasing their knowledge and understanding, but often their 'own vulnerabilities' (Claire, exit interview):

> They see me struggle too, and that I'm not good at everything...especially [modified] games of basketball (chuckle). (Claire, observation #1)

The researcher's observations validate these opinions. The notions of 'being credible' and having 'presence' is such an interesting topic in physical education settings. Certainly, it would be of interest to hear the student perspective in future studies, but according to Hattie (2012) teacher credibility is vital to learning, and students are very perceptive about knowing which teachers

can make a difference. In accordance with what the researcher observed, trust, competence, dynamism and immediateness are key factors in being a credible educator, and teachers run the risk of students 'just turning off' if they're not perceived as being credible (Hattie, 2009; 2012).

The Philosophy and Rationale of Alberta's K-12 Physical Education Program of Studies is oriented towards having students develop the knowledge, skills and attitudes towards being active for life, with the theoretical premise behind physical literacy in alignment with this. There were a number of data items attributed to the importance of **students developing the disposition and then the embodiment, through various and repeated experiences and conversations, of being active for life**. All three participants articulated their role in moving students forward along this journey:

> If I can find even just one activity that a [particular] student is excited about, willing to try, and willing to pursue...then I feel like success has been achieved with that student… (Claire, observation #1 debrief)

> They have to know what's available in the community...know what's out there...some of these kids just don't know or have never been shown or had the opportunity. Show them some activities and sports in PE class that they can play outside of school for most of their lives [for example] pick-up games of basketball (3 on 3); golfing, so they can accept an invitation from work colleagues in the future; curling, they can play that [so late in life]...etc. (Allan, exit interview).

This was reinforced by the participants' philosophical approach to the delivery of the PE curriculum (asked about during the initial round of interviews), as unit, year plans, posted weekly schedules contained a wide variety of sports (often modified) and physical activities in a

wide variety of environments, that could also be accessed in the surrounding communities of the high school (Rock Climbing, Curling, Acrobatic Yoga, Pickleball, Broomball, Martial Arts, and various Aquatic activities to name a few). Through the many discussions of how the tenets of physical literacy might be infused using the current PE curriculum, it became very apparent that having a deep **knowledge and understanding of how Alberta's K-12 PE program of studies functioned,** and how it could be leveraged to design experiences that were intentionally focused on multiple domains of the concept, was greatly needed. All three participants' knowledge of the program allowed them to carefully design activities (when in discussions with the researcher) that contained the critical attributes of physical literacy. Understanding this also required knowledge of **scaffolding** instructional strategies and activities that could provide just the right amount of challenge for individual students (using Vygostksy's concept of Zone of Proximal Development). Discourse between the researchers and participants often centered on developing the tenets of physical literacy during game play, including activities that 'levelled the playing field' (Claire, Observation #2 debrief) between 'athletic' and 'non-athletic' students, had opportunities to 'level up', or allow for more complex movement challenges, strategies and tactics to be scaffolded in. A sound understanding of pedagogies that supported **skill development** and a sound understanding of **movement education** was valued by all three participants. Although many activities showcased by participants throughout the study allowed for students to participate to the best of their ability and experience success, they initially had difficulty in designing tasks that allowed students to become more skillful and fluent in their movements and become more thoughtful about strategies and tactics employed for personal or team success:

> Skills in isolation don't get buy-in - game play does, but I need to come up with ways to improve their [movement] skills, while maintaining their interest and... [engagement]. (Ella, Initial interview)

Participants perceived that it was important for trained educators to be aware of **gender** differences and in some cases, preferences. Perhaps this was accentuated by the school offering gender separate and 'co-ed' opportunities for students within physical education settings:

> My approach to girls and co-ed classes varies slightly, even the language I use is different. (Ella, exit interview)

The pedagogical approaches often differed between the 'male' and 'female' classes. From the three days of observations, Ella and Claire were often very particular about the language they used with their female participants when engaged in physical activities - 'strong', 'fit', 'healthy', 'self-concept', 'positive', 'perseverance', 'grit', 'effort', and 'personal best' were common place throughout the course of the study. The female classes often started and ended in a circle and discussed what was in the hearts and minds of the students. There was more non-traditional equipment and manipulation of the rules and boundaries to suit the needs of the students in both female classes. All three participants used student-selected music during the classes. Allan's male class, had more of a traditional design (a number of weeks were traditional 'sports' with standard equipment used in those sports), although many of the 'warm-up' games were very creative - paying attention to all domains of physical literacy, and focused on the students' movement abilities. The class started with a lot of more dynamic movements and focused on the fitness of the students. The closing part of the class (the debrief) was shorter, focusing less on what had been learned or accomplished, and more regarding the activities for the remainder of the week. Words or phrases such as 'responsibility', 'working hard', 'being part of a team',

'controlled competition', and 'skillful' were often used. The male PE class valued the class as a unit (structured almost like a military unit) and was often asked by Allan to appreciate each other's efforts - "give yourselves a round of applause" was a phrase often used.

Culture

Based on the initial interviews of the participants, there was collective teacher efficacy (CTE) amongst the three participants, believing that they were able to positively influence students in physical education. Hattie (2012) describes CTE as being positively correlated with student achievement. A group of teachers or faculty that believes they can accomplish great things is vital for the health of a school, and if they believe they can make a positive difference, they likely will (Hattie, 2008, 2012). Classroom 'culture', which in this case was defined as the ensemble of values, beliefs, aspirations, expectations and behaviors, which prevails in the classroom, conditioning its performances (Fat, 2015), was perhaps the most difficult for the author to collect clearly defined data items, as items found within the boundaries of this component could also be placed within other components of the PLP framework. The data clearly indicated that the **teacher-student relationship** was paramount to the fostering of a positive classroom climate facilitating learning and enhancing student engagement:

> Fostering relationships is the key to success of the individual and the class. The students have to feel a sense of belonging and ownership in the class...to feel a part of something. (Ella, exit interview)

Wojcicki (2002) would concur claiming, amongst other influences, that classroom culture comes from the image that students have about their teacher and what kind of relationship they have with their teacher. The data extracts and initial coded themes derived from the data set, were largely teacher driven for this component of the PLP framework. Once again having a teacher

that **models appropriate behaviors associated within the contexts of the physical education** setting was deemed to be important. Perhaps not surprisingly the importance of displaying human qualities as an educator came through during examination of the data, such as being **positive, passionate, energetic, humourous, caring, vulnerable and empathetic**. This was coupled with having high expectations for students, believing they could achieve (Wojcicki, 2002), and putting 'an arm around [them] when it was necessary' (Allan, exit interview):

> I want students to enjoy [PE]. That's number one. Personally, I think if they enjoy it, then they'll want to come back to it. I also want them to face up to adversity and embrace the struggle at times. Having opportunities to rise up to personal challenges and persist throughout this course and in life, will make them stronger in so many ways. (Allan, Initial interview)

> She was like 'Miss L I'm not feeling well today, is it cool if I take it easier?'. I'm like, this is perfect. She sees me as a caring teacher. (Ella, Exit interview)

Facilitating activities that asked students to persist, strive for personal excellence, and move towards independence (discussed in Dudley's 2015 article and prevalent in New South Wales's Physical Literacy continuum) and assuming **both personal responsibility for their learning, and social awareness** during their physical education classes (Hellison, 2006; Kirk, 2013) were articulated as being important qualities for educators to value and develop and perceived to be also valued by students throughout the study. All participants started to develop some of these personal and social skills in their students from the onset of the study, as all began the year with a selection of **cooperative activities,** along with **reinforcing routines and providing structure** that they hoped would help create healthy and productive habits for future

success. Allan shared his value of consistent attendance and being punctual, and about one student whose success was being impacted by inconsistent attendance and punctuality:

> It's purely attendance. When he does arrive it's 15-20 minutes late, missing our dynamic warm-ups and fitness. I always welcome him in my class when he does arrive, but he isn't motivated. So, I had some frank conversations with him...what's going on my brother? He said my brother drives … [this and that] ...I'm like bro man, we have to stop laying the blame on the feet of family members. You got to take ownership as a 15- and 16-year-old young man...we have to take ownership of our lives and start accepting responsibilities...it will benefit us. This class can help you with this. How can we solve this problem together? (Allan, Observation #3 debrief)

All three participants viewed their **classes as learning communities with students being stakeholders** (a progressivist philosophical orientation), acknowledging that time for **reflection was critical** (all three participants also had their students self-evaluate at the end of each week (also at the end of each 'unit'):

> I have them fill out a self-evaluation each week, and we debrief our learning in a circle...it also gives us a chance to chit-chat about life. My girls respond to that. (Claire, Observation #1, debrief)

While valuing providing structure and routines, **providing certainty for students** by letting them know what the week entailed (weekly agenda), and how they would be evaluated each week was also emphasized. Transparency was key. **Students knew expectations**, and the researcher twice witnessed expectations being revisited during two different observation days. Expectations regarding participation levels and engagement in activities that required MVPA

were adjusted when Ramadan began, understanding that a significant percentage of the school population are practicing Muslims.

Throughout the researcher's time at this school, showing **kindness and gratitude** for what you have, and who you have around you, was part of the school ethos. This was driven by the administration and teaching staff, and during the observations, all three participants discussed this with their students. **Giving back to your community** and contributing to your surrounding community was important to all three participants, particularly to Allan, who often championed the phrase 'We the North' (a term illustrating pride of living in Canada, North of the US, associated with the Toronto Raptors Basketball team) Students clearly felt a sense of **belonging,** most of whom attended with regularity, and participated fully. They often acknowledged that Allan played an important role in the school and the community. They clearly admired his personal set of values:

> Playing an active role in your community is so important. Know your hood. Take pride in it. There are so many opportunities out there in most communities to be active. Family is important too. An active family provides support and encouragement. If they don't have any role models, valuing activity may be difficult. [We have to show them what is out there] ... (Allan, Initial interview).

Participants also articulated the importance of knowing, understanding and having the ability to **plan** and program for activities that could assist **students in moving forward on their physical literacy** journey, and **facilitate activities that subscribed to all four domains of PL** as intended by much of the literature on the concept (Dudley 2018; Ennis, 2016; Pot, 2018; Whitehead 2010). They felt that this would continue to develop students' movement abilities, improving confidence and motivation, and add to a positive and engaging PE environment:

> Understanding and delivering physical literacy in PE can only help kids become better movers and add to a positive class climate. (Claire, Initial interview)

The introduction of activities rich in the tenets of physical literacy would require teachers to become familiar with a **variety of pedagogical approaches** to suit the diverse needs of the learners found in their classrooms.

Curriculum

After all of the data had been examined, it was clear that the participants relied upon and valued their extensive **knowledge of Alberta's K-12 Physical Education program of studies** in order to deliver a quality physical education (QPE) program and infuse learning experiences rich in the tenets of physical literacy. In amongst all the data, there was extensive references to PE curricular outcomes, the philosophical intent of the PE program, and the five dimensions of the PE program from which Alberta's educators are obliged to choose a variety of physical activities. Each participant had their own vision regarding how the PE curriculum could and should be actualized in their learning environments, and how physical literacy could fit within Alberta's PE program. There was much discussion about the **reciprocal relationship between student learning outcomes A, B and C from Alberta's PE curriculum and Outcome D (Do it Daily!), or in some cases that A, B, and C were a platform for D with a view to developing the desire to be active for life (Alberta Education, K-12 PE Program of Studies, p.5).** Conversations indicated that participants thought that if students became better movers, made healthier choices, and were able to get along and work with others, they would be more likely to enjoy positive experiences in their PE classes and embrace daily physical activity (notes from observation #1 debrief, Ella and Claire).

Participants also **valued the flexible nature of the current curriculum**, that allowed for a delivery of a **wide variety of physical activities and sports that were modifiable, and could allow the tenets of physical literacy to be infused** without moving away from the mandated outcomes outlined in the curriculum:

> When we talk about the [components] of physical literacy, they fit nicely into our current PE [program]. I can be more intentional about my [programming and delivery] without having to reconstruct my course. (Claire initial interview)

However, it is clear that educators would need a deep understanding of physical literacy coupled with a similar understanding of PE curriculum in order to plan, develop and deliver quality PE learning experiences that include **all domains of physical literacy as intended by current definitions.** Moreover, participants that understood **MBP (Models-Based Practices) for PE** were perceived by the researchers to have the ability to develop lessons, activities and experiences that 'dug deeper' into the student experience. Claire, in particular, used Bunker & Thorpe's (1982) Teaching Games For Understanding (TGFU) Model (or a modified version of the complete model) throughout the study, and Allan used many elements of Siedentop's (1984) **Sport Education Model** (SEM) during the course of the study. Both participants commented on physical literacy working well with their current philosophical approach to teaching PE, with the difference of really focusing on the whole child.

When designing, discussing and implementing activities that involved tenets of physical literacy, participants understood the benefit of making connections to purposeful physical pursuits and delivering **non-traditional activities,** such as indigenous or marginalized games and modified games from around the world, low-organized games, games that support social-emotional learning and strategic thinking, along with carefully thought out versions of

'traditional' sports and physical activities. Often equipment, rules or dimensions of each game or activity were modified to suit the needs of the student participants. The design of these activities, considered the student context first, thinking about not only the developmental level of students, but where they came from, and what they have previously experienced or not previously experienced. This **supported students as stakeholders.** This approach was perceived to increase student participation and engagement:

> Our PE curriculum allows for all sorts of games and activities from around the world. I always ask my girls what activities they're interested in, or what they'd like to do...you would be surprised by some of their [non-traditional] answers. (Ella, exit interview)

The topic of assessment often came up when discussing curricular outcomes or PE curriculum in general. Participants often discussed their thoughts around their current assessment practices (largely formative), and wondered how physical literacy *could* be assessed (or whether it *should* be assessed), and how future assessment practices may be affected by a change in the philosophical underpinnings within physical education. Claire, in particular, was aware of various early assessment protocols for physical literacy, including PHE Canada's **Passport for Life,** and how documents obtained from their website, could be used as initial tools to formatively assess elements of physical literacy.

Meaningful Experiences

The attention we pay to personally and intrinsically meaningful experiences is supported by evidence that individuals are more likely to commit to a physically active lifestyle because of the personal meaning found in physical activity experiences that are satisfying, challenging, social, and/or fun rather than extrinsic motivational factors (Ryan, et al., 1997; Teixeira et al., 2012). Therefore, the conceptualization of pedagogies geared towards meaningful experiences in

physical education is paramount if one of the goals of many physical education curricula across the world is to be achieved (Ní Chróinín, Beni, Fletcher, Griffin, & Price, 2019)**.** In this study, the three participants were asked to reflect upon how their students draw meaning from their experiences in physical education. They were also exposed to research and literature in this particular area of study (Beni et al. 2017; Kretchmar 2006). The participants articulated that the social dynamics of PE classes were critical to their class's success, and that they programmed intentionally for **positive social interactions to take place frequently.** This began with a variety of cooperative activities to start the year, and team games that focused on experiences being *educative* in nature. Many of the tasks of activities within a class were purposefully designed so that students were **obliged to cooperate and communicate, solve problems and make decisions as a team.** The process of how that was accomplished was often left up to the students themselves:

> It's important for the kids in my class to learn to get along with each other. Forming a learning community is important. You have to provide activities and sports [that do] this.... it just doesn't happen automatically. (Allan, observation #1 debrief)

In both female classes, having the ability to **play with friends** within the class was a supporting factor for positive student engagement and participation. There was a level of camaraderie that developed in a variety of physical activities when the teacher carefully planned groups of students being together. Claire was often very wary of external factors (factors outside of the PE class) that had the potential to negatively (or positively) influence relationships within the class. She acknowledged that these factors could in fact impact the planning for an activity if she was aware of them.

Understanding that students acquired meaning in physical education from **personally relevant learning experiences**, participants often let their students compile **music playlists** that reflected their own experiences and culture. This added to the general 'energy' in the classroom. In the female classes, girls were often observed dancing to their favourite tunes whilst happily engaged in physical activities. It was used as a motivational tool to promote longer periods of participation and engagement, especially when playing familiar activities that did not require the teacher to interject very often (during Badminton, Indoor Soccer and Volleyball for example). As previously mentioned, each participant (to various degrees) involved students in decisions around choice of physical activities, with teachers often **individualizing activities** to see if they could alter an individual student's disposition and increase participation levels. Oftentimes Claire in particular found this approach helpful with increasing student buy-in and effort levels:

> Having [my girls] involved in choosing some activities throughout the term helps with their effort. (Claire, Observation #3 debrief)

> Sometimes I'll just throw in an activity that I know some of my girls will likely [raise] their energy levels...80 minutes is a long time for some of my [crew]. (Claire, Observation #3 debrief)

Despite this approach clearly working, Ella and Claire spoke of the difficulties in developing activities that focused more on a group of individuals within a class - the amount of time, energy, and coordination of equipment seemed to take its toll on the two participants as the term moved forward. Moreover, they also noted that there was such a **broad developmental range** within these classes, and that this too created challenges for the effective programming of physical activities.

All the participants valued students having fun in PE. It was a priority for each participant to provide activities that facilitated **joyful movement experiences,** and had students wanting to come back for more. All three suggested that providing positive learning experiences where student enjoyment was apparent was an everyday goal of theirs. When Allan was asked about how he provided joyful experiences in his class, he stated:

> I think that joy comes from within...I dunno...a mixture of positive energy and love from me [and love for themselves] ...providing some personal challenge [and chances to be] successful...respecting each other...and feeling like they're part of the group and involved in the activity. (Observation #3, debrief)

Providing **just the right amount of personal challenge** for the classes was often difficult, but participants accomplished this by offering novel or modified activities that often required a mixture of physical, social and intellectual skills (strategic thinking). The researchers and teachers discussed components of activities that could be scaffolded to present different challenges, so that students could play particular roles within the rules of the games. **Competition** was another factor that was carefully considered during the planning and implementation of physical activities, as it was clear that some students really enjoyed competition and others did not. Participants often offered options for the more competitive and less competitive student, which seemed to maintain, and sometimes perceivably increase participation levels.

Empowerment

Involving students as stakeholders (students having choice and voice) in their own educational experiences supported their desire to play an active role in the class (choosing activities, music, circle discussions, self-evaluations etc.). Participants also **set goals** with their

students early in the school year and revisited these goals to varying degrees throughout the term. Although, it must be noted that teacher participants did not necessarily speak regarding the benefits of students setting and revisiting goals, the literature supports this practice in physical education (Baghurst, Tapps & Kensinger, 2015).

> As far as setting goals went, we set goals at the beginning of the year. I think I could've done better at kinda going back to them. We only went back to them three or so times throughout the term. (Ella, exit interview)

There are, however, opportunities within the structure of the current PE program of studies to **develop leadership and followership skills**, and participants developed these experiences based on outcomes with the PE curriculum. All three participants required students to experience leading a warm-up, cool down, or movement activity of their design or choice, offering **mentorship** on how to accomplish such tasks. With some encouragement and prompting from each teacher, students were perceived to enjoy presenting in front of their peers, and each teacher participant led the process of **positively reinforcing** student work.

In both of the female classes, teachers reinforced the benefits of being a strong, independent female, often using words or phrases like ‘girl power’, ‘you go girl’, or ‘are we feeling great ladies?’. According to the two female participants, they received frequent testimonies from female students describing feeling more positive about PE and confident in themselves after been provided choice and voice in the course. It was clear though, this could not have happened without the teacher participants providing structures that allowed students to have such experiences, and both teacher participants worked daily on building relationships with their students.

Movement Competencies

Movement competencies are a key component of physical literacy (Dudley, 2015; Francis et al. 2011; Pot et al., 2017; Whitehead, 2010). Understanding that four domains of physical literacy permeates through much of the current literature (Dudley 2018; Robinson & Randall, 2016; Roetert & MacDonald, 2015), the study was to examine where in the PLP framework would Movement Competencies reside, and what might educators need to understand and enact in order to help students move forward in their physical literacy journey.

Perhaps not surprisingly, at the study's inception all three participants articulated the physical domain as being a foundational component of the PLP framework. These sentiments echoed in parts of literature, where there seems to be an overemphasis in the development of movement competencies (physical domain) in relation to the other three domains (Edwards et al. 2018; Ennis, 2015; Jurbala, 2015).

The participants viewed **repetition-based learning experiences in a variety of physical activities and environments** as being an integral part of moving students forward on their physical literacy journey. This was accomplished by establishing weekly, rather than bi-weekly, or monthly changes in physical activities, accompanied by opportunities to **practice skillful movements or movement sequences that were considered critical to personal success** with the activity context. Further to this, **game play (in selected activities)** presented an opportunity to practice the fluency of skillful movements, often under time pressure, and employ strategic thinking and tactical understanding. Claire in particular, often introduced warm up games that focused on certain skills pertinent to the modified sport or physical activity. She often then bounced between game play (that encompassed some recognizable features of the game) and skill development, **scaffolding** more complex movements for those students deemed capable of such:

> I think it is critical that students develop fundamental movement skills and have opportunities to become better movers while they're with me. So many students come into high school with poor movement skills and such a poor understanding of how to move in different activities and environments. (Claire, Initial interview)

Participants were observed to involve instructional processes that aimed to increase the accuracy and fluency of movements like practicing the **phases of movement** (preparation, execution and follow-through) in low-organized games (like Speedball for example) and recognizable activities such as Tennis, Flag football, Slo-pitch and Ultimate Frisbee; activities that facilitated the development of **bi-lateral symmetry** (juggling, dribbling a basketball with both hands, both hands used to hit targets in *Capture the Cone* etc.); and activities that contain **movement patterns, sequences or combinations of movements** that support movement *proficiency and fluency* (Dance, Acrobatic Yoga, *Fit-tac-toe*, obstacle courses, Ultimate Football, *Olympic Torch* etc). Both female participants were particularly attentive to providing time for the practice of **fundamental movement skills**, whether it be in warm up or during parts of game play. In some instances, sport skills were practiced, particularly for activities that required very specialized movements (coming out of the hack in Curling for example), that would presumably lead to success within that activity context, but oftentimes the participants articulated the importance of transferable movements and sports skills to students:

> Practice is key. Repetition is key. If you can bring fun into practicing skills that will allow you to be successful...then you've found part of the... [secret formula]. (Allan, observation #1 debrief)

Movement concepts like spatial awareness, relationships with objects and people, quality of movement and effort, were all either intentionally programmed for or alluded to, particularly

during game play. Allan, in particular, described the importance of reinforcing these concepts continuously to enhance student success, with a view to students having more 'successful' experiences in PE.

Assessment of the physical domain often became a topic of conversation during visitations, which was not surprising in a district that emphasizes assessment practices to be a driver of instructional practices. Two of the participants were a little familiar with various instruments that are currently used by educational practitioners to **formatively assess and improve physical literacy levels of school aged children** (PHE Canada's Passport for Life and Sport for Life PLAY Tools). Participants were interested in using these tools as a way of providing feedback to students regarding their physical literacy levels across the four domains. Claire described attempting some of PHE Canada's Passport for Life Movement Skill assessments which focuses on throwing, catching, kicking and locomotion. The assessment of physical literacy was something that all three participants had a desire to know more about and felt that this was an important piece of the puzzle if they were to place the principles of physical literacy at the heart of their instructional practice. Overall, the participants iterated that professional learning in this regard would be hugely beneficial and felt that this would increase their confidence when being asked about their pedagogical practices in relation to physical literacy.

Motivation and Confidence

According to Chen (2015), one of the most influential sources of motivation in K-12 PE that underlines several constructs is perceived competence. It is a common motivation platform for children to form achievement goals, expectancy beliefs, and self-efficacy (Bandura, 1980; Nicholls, 1984).Throughout the study, teacher participants discussed that when students

perceived they were competent in an activity, they exhibited **confidence to perform and were motivated to play and engage in any related activities.**

> My kids are motivated by success. If they think they will be good at it, they will play. It can be a struggle to motivate students when they think they don't like an activity. Many actually like the game once we play it. (Allan, observation #2 debrief)

Interest is another powerful motivation source for children and adolescents (Chen 2015), and the teacher participants included games and activities throughout the term that drew input from the students. Including activities that students enjoyed and perceived themselves to be competent in, saw a greater level of engagement. Teachers included weekly or bi-weekly surveys and student self-evaluations that **examined student interest, engagement and performance**. Claire periodically used materials from PHE Canada's Passport for Life to gauge students' dispositions towards physical activities, including the Active Participation and Living Skills surveys. Ella and Claire used extrinsic motivational tools including student interest related incentives and academic incentives, along with consistent **positive reinforcement** to help motivate students that were reluctant to participate in whole or in part during class time. They often **empowered students** to direct classroom activities, providing them with roles and responsibilities for warm-up, equipment, and even facilitating classroom activities (as observed during Fitness and Volleyball units). Teacher Allan often used **competition** as an extrinsic motivational tool that worked to a certain degree in most activities – even during warm-up and closing activities. Students were often provided with **formative feedback**, which was perceived to move students towards a more successful personal performance, which in turn increased their motivation to challenge themselves throughout subsequent activities. Student motivation and confidence during physical activities was perceived to be inextricably linked, although student confidence

was deemed by teacher participants to be very much **contextual**. The term **'personal best'** came up in several interviews (also a term observed being used frequently by Allan during class time). It was used synonymously with student success and was also perceived to be a factor that had implications for increasing student motivation.

> In my opinion, if you provide opportunities for students to be successful in activities they will keep coming back for more. They're more motivated to continue participating if they know the end result will likely be a positive one. For girls, friendship can be a motivator, but negative energy in class, or in an activity, can also limit participation (Claire's exit interview)

According to Deci & Ryan (2000), another powerful source of motivation is the psychological needs that all human beings are keen to fulfill in their life: the needs for autonomy, competence, and relatedness. These are all sources for human motivation and the fulfillment of these needs determines individuals' self-determined motivation (Chen, 2015). One can see in the data, which students demonstrated the desire for these needs whether it was in the PE class or requested of the teacher by PE students.

Knowledge and Understanding

Knowledge is at the heart of physical literacy and provides the foundation for knowing what to do and how and when to perform (Ennis, 2015). The need for knowledge and a deep understanding of physical literacy is critical for educators if they are to assist students along their physical literacy journey. It was conveyed to teacher participants before the study began that knowledge of facts, procedures, principles, and concepts and their cognitive and physical applications permit physically literate individuals to transfer knowledge to new contexts, solving previously unencountered problems in novel situations (Ennis, 2015). Teacher participants did

not all arrive with a similar knowledge and understanding of the concept, so this was an immediate challenge that the researchers had to work with. As the study moved forward, teacher participants' understanding of learning experiences that were rich in the tenets of physical literacy became deepened. Allan, in particular, made more room for the cognitive learning domain in his classroom practice as the term wore on, intentionally and unintentionally incorporating parts of Bunker and Thorpe's (1982) **TGFU model**, and with it aspects of the more flexible and non-linear pedagogy **Game Sense Approach** (Pill, 2018). Claire's employment of the cognitive learning domain, considered to be one of the four domains of physical literacy (Dudley, 2015) was more intuitive.

> Asking questions throughout games and activities are a usual part of my gym routine. I want to see understanding in action and want students to think tactically and strategically when they play. You plan intentionally for this. It rarely emerges by accident (Claire, Initial Interview)

All three teacher participants knew the importance of helping students make connections during movement activities, whether it be the **transference of skills, strategies and tactics** used in one game to another, or helping to **encounter solutions to new problems** during game play, students were active in the cognitive learning domain. Teaching cues, pre-planned or otherwise, to facilitate thinking through movement, whether it was time to strategize or personally reflect upon an experience, was used with regularity by teaching participants. For example, during Ultimate Football Allan provided time for students to **develop plays that would lead to successful participation** and allowed students to think about **rules they could modify or include to bring about an intended outcome.** Teacher participants, with the assistance of the school's Fitness Trainer, developed personalized exercise plans for students during Fitness units. Students used

their knowledge of basic training principles, physical literacy and their own preferences to help develop plans that would target all components of fitness. Durability, or the ability to maintain challenging exercise participation, was discussed during classroom time. Activities were introduced with the goal of strengthening students' abilities to participate in physical activities daily. Claire used a **number of formative assessment strategies to assess comprehension** (self-evaluations, exit slips, and 'brain drains' for example), with a view to program for upcoming classes; and used questioning components from the TGFU model to assess knowledge and understanding of an activity. Female students were engaged during these processes, and Claire perceived **student growth in their decision-making abilities during game play** as a result of being accountable cognitively during PE. **Time was provided at the end of lessons by all participants to debrief the learning** that occurred during a range of physical activities, although all three participants admitted that this process did not occur every day (especially when classes were off campus). Researchers discussed with participants the need for students to develop **movement vocabulary** (Kriellaars, 2017), and how using terminology associated with physical literacy would allow students to connect thoughtfully to their experiences and have the skills and language to clearly articulate their learning. Ennis (2015) suggests that providing students with both access to skillfulness required to participate competently and a level of mindfulness to experience the activity deeply and meaningfully stretches our current definitions of physical literacy, and encourages us (as educators) to explore new educational avenues for students.

Consistently Engaged

As previously mentioned, Beni et al. (2017) highlighted the need for the development of pedagogies that facilitate and promote meaningful engagement in physical education and youth

sport settings. Much of what was discovered during the study was supported by literature associated with students making meaning in PE. Teacher pedagogical practices had profound effects on student engagement, and often became the difference in what was perceived to be a 'successful' or 'unsuccessful' lesson. Further to this, student engagement was often enhanced by **social support received from both peers and teachers**, with the **relationship between the student and the teacher** highly influential on student active participation. Teacher participants used several effective pedagogical approaches to consistently engage students in PE, including the introduction of **low-organized games (more often than not small-sided to encourage frequent and intense participation)** that provided opportunities for students to be **challenged both physically and cognitively;** the introduction of activities that carried with them a high degree of **personal relevance** for students; lessons that were **'chunked' with multiple free-flowing activities and scaffolded tasks** (as witnessed in the teaching of a juggling lesson for example); the use of **typical games that were modified** to meet the needs of that particular student population (during the volleyball unit for example); the incorporation of what teacher participants considered to be **'lifelong activities'** or activities that you could play with your friends in the back yard or during the summer time; and the inclusion of **unstructured or 'free time'**, where students had an opportunity to choose equipment or an activity of preference.

Social structures in PE class carried importance for students, and had implications for engagement, such as the **ability to play with friends, play in a competitive or non-competitive environment, and opportunities to develop camaraderie as a class**.

> Having opportunities to play with [their] friends is so important for [my students]. It keeps them engaged and motivated. I still monitor their participation and make sure they're …not goofing off. (Claire, observation #1).

Other teaching strategies, often overlooked by some educators, were discussed by all three participants to help with student engagement, such as **careful transitions between physical activities, choice of equipment, and being thoughtful around activity choice during lengthy class times** (mindful of energy expenditure over an 82 minute class).

> *I have to make sure all my equipment is ready to go, my explanations are brief, and my transitions between activities are tight (even when I assign [students] to certain roles). Kids…don't like standing around waiting for me, although they do a decent job of regulating…sort of.* (Ella, observation #2)

Anecdotally, Allan's male class was perceived to be deeply engaged during **'game play',** and not so much during traditional warm up activities (running laps or simple passing drills), and activities that that did not require a degree of mastery. Alternatively, both female classes seemed to **enjoy fitness related activities at the beginning the class** (particular embedded tasks that were challenging but within a student's zone of proximal development) **and station activities where they could work in partners or small groups**. The **use of music** (student or teacher selected) was appreciated in all situations, particularly in classes that did not require a great deal of direct instruction.

Next steps: Reviewing, Defining, and Refining of Themes

Once codes were establishing for each of the PLP Framework's components, work was undertaken to review, define and refine themes (Braun & Clarke, 2006). The decision was made at this stage to find themes *within* each component of the Framework, rather than *across* the Framework. This provided an opportunity to revisit data sets and ensure accuracy in each of the Framework's components.

Trained Educator

Reaching back into the data, we began to see some codes more evident than others. Through the eyes of participants and researchers, the need for educators in PE to have **continued professional learning (CPD) on physical literacy**[2] would ensure teachers would have an opportunity to connect with other educators and researchers regarding moving their knowledge and understanding forward. It was widely articulated that a **deep understanding of PE curriculum and its relationship with the principles of physical literacy** and is necessary for teachers to deliver quality PE experiences rich in the tenets of physical literacy with competence and confidence. Moreover, an opportunity to **develop and practice preferred pedagogies associated with the successful implementation of physical literacy** was articulated as being important to the long-term success of moving students forward on their physical literacy journey.

Creation and Support of Culture

Both students and teachers play a role in the creation of a culture that supports students' physical literacy journeys. **Alongside placing the students at the center of all decisions, the need to provide *educative* experiences by teachers that would allow students to flourish in PE was evident countless times in the data**. The data not surprisingly revealed that the PE environment needs to be **safe** for students to take risks and free of harassment or conditions that lead to negative social experiences. Educators have to provide students with opportunities to foster a positive disposition towards movement experiences through a variety of pedagogical approaches, exposing students to important considerations that will ultimately move them forward on this life-long journey. The importance of **embodiment**, both by teachers and

[2] Bolded text highlights themes pulled from coding

students, was extracted from the data, as role-modelling and 'walking the talk' was articulated by participants throughout the course of the study, discussed in both introductory and exit interviews.

Meaningful Experiences in PE

Not surprisingly, our study revealed a similar pattern of data outlined in Meaningful Physical Education (MPE) literature. **Social interaction** in PE settings was found to be a **foundational anchor** from which all other themes found in this component of the PLP Framework stemmed from. The notion of PE being '**joyful', 'fun', and 'personally relevant' while offering just the right amount of challenge for participating students was articulated by participants and observed.** Finally, students that experience physical success and have the **motor competence** to be successful in a given task provided another layer to meaning making.

Empowerment

Through discussions and observations with teacher participants, the data analysis revealed that **students appreciate being given choice and voice in PE**. Upon examining the initial codes, structures that teacher participants put in place permitted students moving towards **independence within the PE setting**, helped facilitate the growth of other factors that lead to continued participation in physical activities, such as motivation and confidence, and a willingness to embrace physical literacy as a journey. **Female students were perceived to be more engaged and participated fully when empowered** by their educators.

Curriculum

Alberta's current K-12 Physical Education Program of Studies is **flexible** enough to support all tenets of physical literacy being woven into teacher practice. Teacher participants appreciated from having the time to build connections between their current PE practice and a current understanding of physical literacy literature to form new experiences that could foster students' physical literacy skills. They also needed to be **reassured that the development of planned and purposeful activities and assessments rich in the tenets of physical literacy could satisfy PE learning outcomes in the K-12 PE program**. This trust was developed over the course of the study.

Movement Competencies

The value of utilizing a **Models-Based Practice (MBP)** approach to teaching PE, particularly Game Theory (GT), Teaching Games For Understanding (TGFU), or Sport Education Model (SEM) to engage students deeply in learning was evident in the data, as all three teacher participants successfully enacted preferred pedagogies related to MBP in PE with positive results. **Allowing students to practice challenging and skillful movements** and sequences within game play and individual competition increased student participation and engagement, while perceivably increased motor competence over time. All three participants' leveraged fitness related activities daily in PE, which contributed to a more **'durable' student who was deemed to have physical capacity to participate daily in PE.** The assessment and evaluation of physical literacy was discussed periodically throughout the study, and the **formative assessment of movement competencies** through recognized assessment instruments was supported by teacher participants (notably PHE Canada's Passport for Life).

Motivation and Confidence

Teacher participants appreciated being introduced to ways students could be formally assessed in this regard. Validated student surveys and various other methods of **gathering information about student motivation and confidence and using the data from surveys and other assessment instruments to effectively program for PE was valued**. All three teacher participants highlighted the **reciprocal relationship between motivation and confidence and movement competence**. Motivation and confidence to participate often led to increased motor competence in an activity and often led to a perception of increased student success. This notion was revisited several times during interviews and observations and strongly evident in the data from these collection methods. Though confidence was described throughout the study as **contextual (to activity familiarity, task complexity, outcomes related to success and the physical environment)**, it clearly was linked to becoming a better mover, along with **improved self-concept**. While teacher participants tried to facilitate the growth of **intrinsic motivation** through providing educative experiences in PE, participants leveraged a variety of **extrinsic motivational factors** throughout the study, including prizes, academic incentives and PE course-related incentives.

Knowledge and Understanding

The participants valued the mobilization of knowledge regarding physical literacy for themselves, as educators who value lifelong learning, and for their students. Students who developed and demonstrated the knowledge related to the tenets of physical literacy, and a **deep understanding of how and why we move** participated with regularity in PE class. As already mentioned previously, **MBP can also be used to successfully move students forward in the**

cognitive domain of learning, whether it be using SEM, TGFU or GT. Movement activities that promoted learning in the cognitive domain were carefully implemented by teacher participants to **maximize mind-body engagement**.

Consistently Engaged

Carefully selected activities based on student interest, curriculum requirements and teacher experience were selected with a view to improving student engagement. **Game play** pedagogies engaged 'male' participants, while a variety of pedagogies, especially those with a **social focus** engaged 'female' participants. **A variety of evidence-informed educational practices** also assisted with attempts to increase student engagement. Large amounts of data championed the importance of the **relationship between the student and teacher**, and when the teacher role-modelled an activity or participated in the activity, student engagement was perceived to increase.

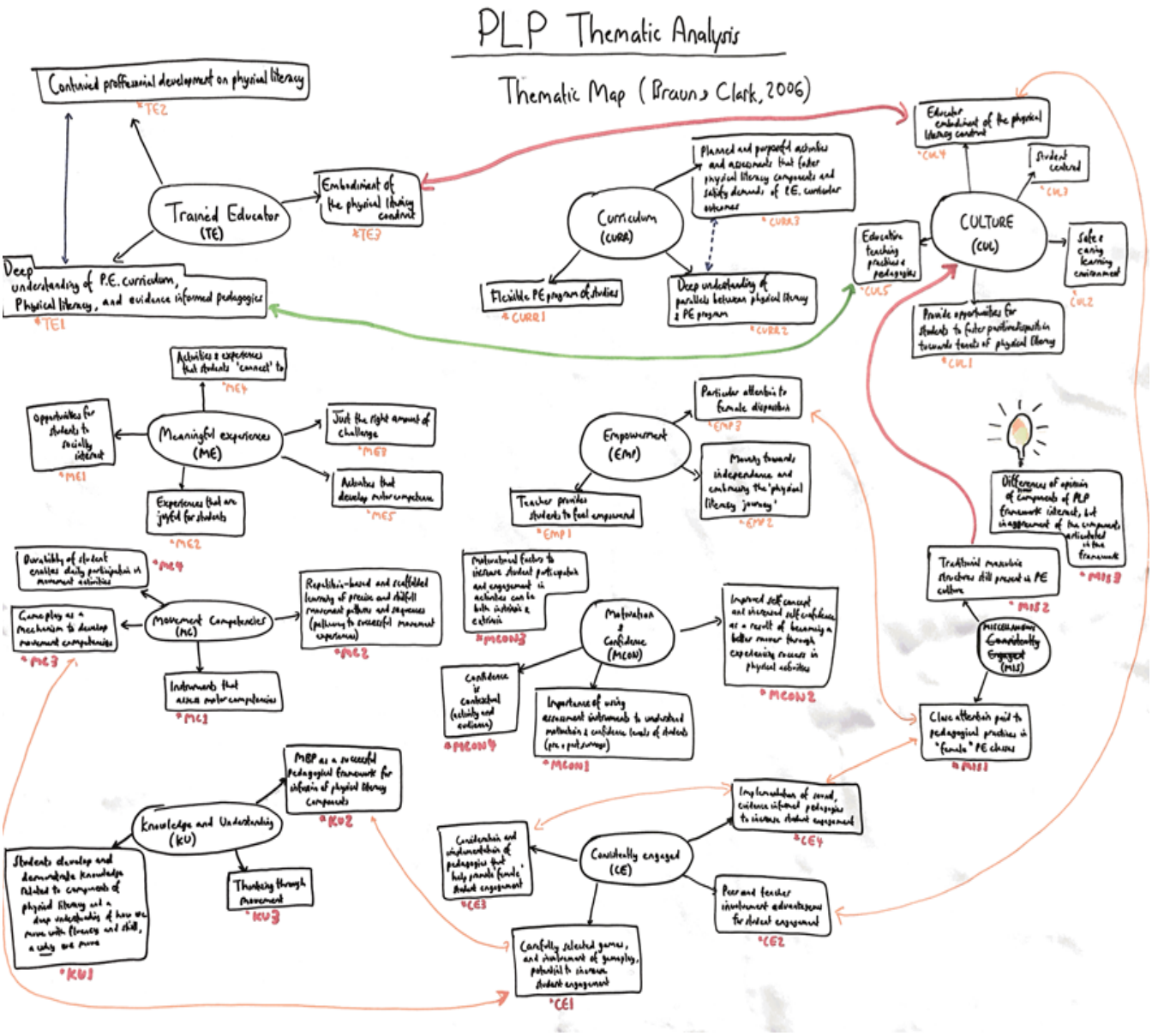
Miscellaneous Data

The predominant discovery from the data that didn't fit into the conventional components of the PLP Framework was the discussion on how the Framework functioned, and although there was consensus as to the Framework's components, there was differing thoughts on the structure of the Framework with participants deliberating whether **improved movement competence (in the physical domain) in the movement competencies component of the framework was the gateway** to deeper student engagement, a greater knowledge and understanding of physical literacy, and improved intrinsic motivation and confidence to continue PE participation.

An Initial Thematic Map

After the process was complete of extracting initial themes from the coded data, an initial thematic map was developed showing links between all parts of the Framework. At this stage we began to see connections and the development of themes that illustrated the interconnected nature of the Framework, and how all parts of the PLP Framework function effectively when working together to create learning environment that supports experiences rich in physical literacy.

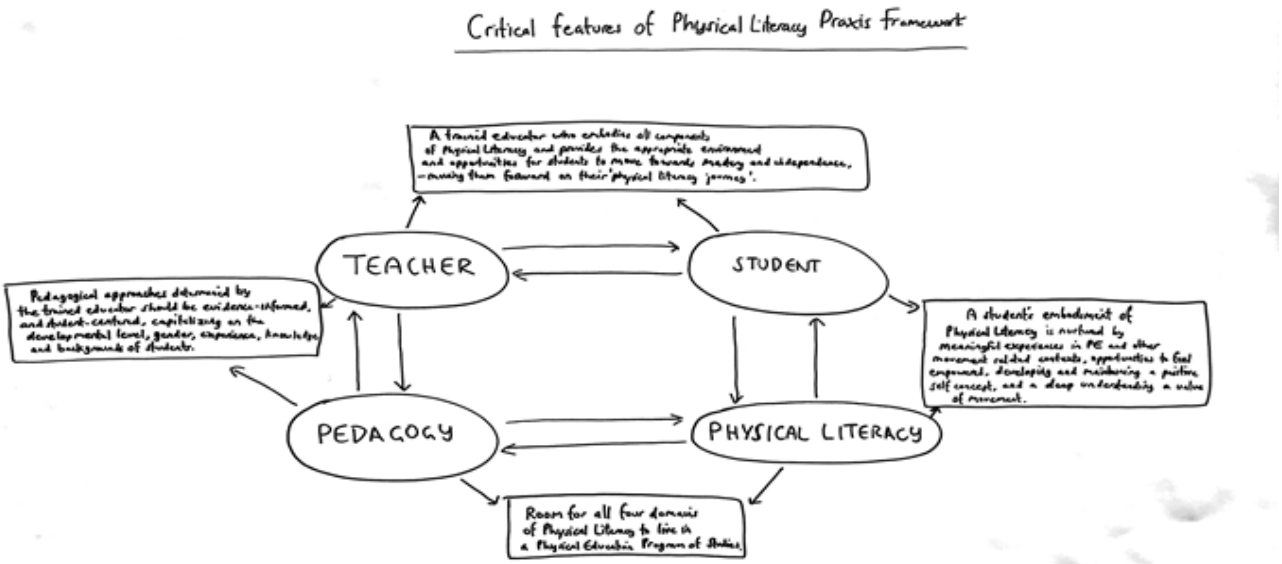
Initial Thematic Map (Braun & Clarke, 2006)



From the findings laid out in the Initial Thematic Map critical findings from the study were extracted. These findings came from a reexamination of data sets across the boundaries of each of the Framework's components:

Critical Findings: *The PLP Framework in Action*

- A trained educator who has a deep understanding of 'whole-child' education, and physical literacy. The trained educator needs to embody all components of physical literacy and provide the appropriate environment and opportunities for students to move towards mastery and independence - moving them forward on their physical literacy journey.
- Room for all four domains of physical literacy to live in a Physical Education program of studies
- Pedagogical approaches determined by the trained educator should be evidence-informed, focused on the whole-child (student centered), and must take into account the developmental level, gender, experience, knowledge and backgrounds of students
- A student's embodiment of physical literacy is nurtured by meaningful experiences in physical education and other movement related contexts, opportunities to feel empowered, developing and maintaining a positive self-concept, and a deep understanding and value of movement.



Chapter 5: A Beginning

A dualist perspective on what is educationally valuable, whereby academic attainment is the top priority, seemingly informs the entire curricular spectrum (Bleazby, 2015). It is a pervasive and problematic idea which maintains that supposedly abstract (academic) school subjects, like mathematics and physics, are more valuable than subjects associated with concrete experience, practicality and the body, such as physical education, drama and vocational subjects (Bleazby, 2015; Pitfield, 2013; Teese, 1998). Many argue that the strength of physical education lies in its ability to develop the child holistically (Lund, 2010; Sucre, 2016; UNESCO, 2015). Interestingly though, through a process of hegemonic dualism, physical education has repositioned itself supporting the notion of mind before body (Brown & Payne, 2009)

It would seem, therefore, that there is a pressing need for researchers and educators to reconsider the currently lopsided view of educational priorities and to broaden the vision on human intelligence (Sprake & Walker, 2013). Adopting a *monist* understanding of human embodiment might see both the physical and the cognitive components of physical education being valued equally (Whitehead, 2001, 2010). Perhaps more importantly, doing so might enable physical educators to facilitate an environment whereby the holistic development of children and young people could truly flourish. From this perspective, physical literacy would be viewed as a legitimate learning journey, one that has the potential to redefine the role and nature of physical education (Sprake & Walker, 2015) during a time where the subject continues to be marginalized in many respects (Tinning, 2009).

"...the goal of every learner making progress on their individual physical literacy journey should underpin all curricular and extra-curricular work in physical education" (Whitehead, 2013)

One could argue that physical literacy is our first literacy. We move as we explore our world; we move as part of our emerging communication patterns and processes; and we move as we start to make meaning of the world around us. Esther Thelen (1995) states that "People perceive in order to move and move in order to perceive. What, then, is movement but a form of perception, a way of knowing the world as well as acting on it?". It has become clear that educating the physical becomes critical with a view to educating the whole-child, and physical literacy has an important contribution to make.

In an era where non-communicable diseases are on the rise (PHAC, 2009; GBD, 2015), many have argued that developing physical literacy across the lifecourse is as important as developing literacy and numeracy skills (Tremblay, 2012; Delany et al., 2008; Schools and Physical Activity Task and Finish Group, 2013), and that physical literacy is the foundation for active and meaningful participation in society (Whitehead, 2001, 2007, 2010; Mandigo et al., 2009, Kriellaars, 2017). Researchers have proposed that physical literacy influences important health outcomes, such as cardiovascular fitness, strength, motor skills (Edwards et al., 2018), and obesity status (Gately, 2010), while also being associated with a wide array of behavioral, psychological, social, and physical variables (Edwards et al. 2018). There is much about physical literacy still debated and not yet fully understood, but it is clear that this concept has the immediate support of health, education, sport and recreation policy makers in Canada (Mandigo et al., 2009).

Further to this, researchers suggest that in order to maximize the impact and secure the future of physical literacy in the education and associated sectors, it is prudent to develop a

framework for its practical application (Dudley et al, 2017; Sprake & Walker, 2013). This thesis contributes to wider discourse by providing a framework that creates conditions for the successful and sustainable infusion of the tenets of physical literacy into a secondary physical education program. However, it is clear that further teacher-centered and student-centered research is needed to better support this proposed framework, and perhaps position it on a provincial, or even a national level.

The nature and purpose of physical education has, and continues to be, the focus of much deliberation (Brown 2013; Edwards et al., 2018; Giblin et al., 2014; Hastie 2017; Kirk 2010) most recently with physical literacy central to much of the discussion (Sprake & Walker, 2015, Wainwright et al., 2016). Many continue to champion the importance of physical education for the development of physical literacy (Hardman 2011; Talbot 2007; Whitehead 2010), with a growing body of literature calling for learning in physical education to be authentic, meaningful to learners, and holistic in nature (Beni et al., 2017; Brown 2013; Haerens et al., 2011; Kirk 2010; Stolz 2013).

The case study in this thesis starts the conversation in developing and adjusting a framework that can be used by educators to help develop youth physical literacy. However, there are some limitations to this study. The sample size and profile, in particular the small number of participants and their 'PE' classes followed throughout the study, suggesting more work is needed to further validate the PLP Framework. The study was also limited to one grade within the secondary school context (Grade 10) and future studies should examine the PLP Framework across Kindergarten to Grade 12. Perhaps even more importantly, future studies need to involve student participants who could provide researchers with the necessary data and insights to assist in moving the PLP Framework forward. The student perspective is needed to add the necessary

depth to current discussions on the Framework's components, and perhaps, on how they may be interconnected and interrelated. Researchers also have to consider the benefits of examining an educator of PE's practice for the whole school year (or longer) rather than one high school term (semester). The value of gathering longitudinal data on teacher pedagogical practice would likely be quite considerable and could impact components of the framework. Finally, the data collection process could be adjusted in the future, gathering a greater number of teachers' documents on a more regular basis throughout the study possibly impacting findings directly related to the curriculum component of the framework.

Despite these limitations, the data revealed some interesting findings that future studies can build upon. According to the findings attributed to our thematic analysis of the data, a trained educator who values and has a deep understanding of 'whole-child' education and physical literacy is required to facilitate learning experiences rich in the tenets of physical literacy. These learning experiences in PE, as the research suggests, need to pay attention to the four domains (physical, social, affective and cognitive), thus carrying the potential for students to grow physically, socially, emotionally and cognitively (Dudley, 2016). Not only does the trained educator need to have knowledge of physical literacy, but provide experience that allows all students to embody all components of physical literacy within the educational context, and provide the appropriate environment and opportunities for students to move towards mastery and independence.

The educator should have an acute awareness of where each student is on their physical literacy journey and have the knowledge and skills to develop and adjust a thoughtful plan to move students forward on this journey. A trained educator's pedagogical approach is critical to student success. Effective planning and preparation coupled with purposeful execution and

continued reflection allows educators to remain nimble in their practice. As stated in the previous chapter, a trained educator's knowledge of their students is critical. The design of student-centered learning experiences rich in the tenets of physical literacy must take into consideration the developmental levels, gender, experiences, knowledge, backgrounds, and interests of students. This important information is gathered by student surveys before and throughout the school term helping shape future learning.

Being this nimble, responsive, and flexible to the needs of the class could be very daunting for teachers of physical education, who often have other school commitments that take up a great deal of personal time. Despite understanding this, the development and implementation of targeted and thoughtful activities that support all components of the PLP Framework remains critical to student success, and an investment of time is still needed to ensure execution of these activities allow for meaningful and thoughtful participation by students with a view to improving their physical literacy. Empowering students to become agents of their own learning in PE remains another critical piece of the PLP Framework, providing opportunities for students to be part of the decision making process in relation to day-to-day classroom life, including the physical activities, personal challenges within those physical activities, and the social processes surrounding those physical activities. Providing the conditions for students to make meaning from their PE experiences throughout the study was shown to heighten student engagement, with some teacher participants suggesting that this altered students' perceptions of participating in PE positively. This further points to the need to include student perspectives in future studies and incorporate student testimony on what motivates students to engage fully in the PE experience. Embodiment is crucial as part of an overall meaningful existence (Whitehead

1990) and leveraging our understanding of how students create meaningful experiences in PE will be an important piece of the puzzle moving forward.

Another finding that was interesting but perhaps not surprising, was that the pedagogical approaches used by teacher participants became critical to providing a platform for student success. These approaches had to ensure that the tenets of physical literacy were evident in the learning experience. Knowledge and understanding of physical literacy informed teacher practice, with teacher participants being asked to consider embedding learning from all multiple learning domains attributed to physical literacy, and carefully scaffolding activities to meet the needs of students. A variety of pedagogical approaches were evident throughout the study, but instructional strategies that supported student success:

- considered two or more of the learning domains outlined in physical literacy literature
- contained activities that were carefully scaffolded
- allowed for challenge by choice for students
- allowed for purposeful practice by students
- accommodated components of the meaningful experiences in PE (MPE) model (Berni et al. 2017).

According to the participants, pedagogical approaches that included some or all these factors mentioned above, seemed to be a recipe for a success learning experience, where teacher feedback was positive. Student success was amplified when their embodiment of physical literacy was rooted in making meaning of their PE experiences. This was exemplified when students had opportunities to feel ownership over their journey; they felt empowered within their PE program; they were able to development of a positive self-concept through successful

experiences in PE; and they demonstrated an increased intrinsic value and appreciation of movement.

The opportunity to carry out this study at a large urban high school was a valuable and rewarding experience, with a lot of learning that fell outside the scope of the PLP framework. On top of prioritizing class design and their pedagogical practices, teacher participants were often dealing with so much more information and other expectations on a daily basis, everything from field trip forms, to transportation issues, to progress reporting comments: they seemed to be moving quickly and thoughtfully through their day in a school with many moving parts. Each of the participants also had various other commitments during the study such as Department Head duties, coaching, and prepping for other subjects. Their disposition towards the workload changed throughout the term, but their collective passion for teaching PE was evident throughout. The participants were very open to discussing new approaches and considering new activities, and clearly interested in how the PLP framework could inform future practice. Serving an ever-changing demographic of high school-aged students is a challenge unto itself, without adding the complexity of considering a new framework that could adjust pedagogical practices. I have a great deal of admiration for the work that the teacher participants do daily with their students.

The study has started a conversation around implementing the tenets of physical literacy thoughtfully and purposefully in PE. The PLP framework presents an opportunity for teachers to create an environment that supports the growth of each individual student on their physical literacy journey, developing their disposition and the desire to be physically active throughout adolescence and beyond. However, there is more work to be conducted if we are to get to a place where the Framework can support K-12 educators across this province and beyond. Using

Alberta's current K-12 Physical Education Program of Studies as the Framework's guiding curriculum document, an invitation needs be extended to a greater number of Alberta's educators and schools to participate in future studies. It might be preferable to continue the work at the high school level in grades 11 and 12, where, in Alberta, Physical Education 20 and 30 are elective courses. Perhaps researchers would then have an evidence-informed Framework to support the physical literacy journey for all high school students, regardless of dispositions and abilities. Secondary school (Grades 7-12) physical education is, in Alberta, often delivered by educators who have some degree of 'training' compared to elementary counterparts (Mandigo 2004b) , so it would be very interesting to view (and be a part of conducting) future studies at both the junior high and elementary school levels. Questions include:

- Would the Framework change outside of the evidence-informed four domains of physical literacy?
- How would the structures within the elementary school context alter, if any, pedagogical approaches to teaching physical literacy-infused physical education?
- Would certain components of the Framework carry more importance for elementary educators?

Throughout the study the participants discussed physical literacy in action, with much of the conversation centering on how educators would see signs of student growth in the four domains of physical literacy as the PLP Framework outlined PE delivery. After all, teachers wanted to see if their adjustments in pedagogical practice and delivery of quality PE through a physical literacy lens would result in a change of student attitude towards, and behavior in, physical education. Dudley (2015)'s work on the proposed four core elements of *observed physical literacy*, was particular interest to the authors of this study, as it provided the points of

discussion with the participants and provided points of reference for what the teachers may actually be observing during movement experiences within a physical education setting. These proposed four core elements of physical literacy that can manifest in observable behaviors of any given individual consisted of movement competencies - which highlighted the importance of moving in a variety of environments: land, air and water (with Dudley's 2017 paper highlighting the need to add ice, snow and sand); rules, strategies and tactics of movement; personal and social attributes of movement; and the motivational and behavioral skills of movement. The authors found these observable behaviors particularly relevant for practitioners in physical education, as these behaviors represent a nested progression from simple to complex across all learning domains (not just the physical). These conversations were important in terms of the three teacher participants' understanding of how consistent application of the PLP Framework's components had the potential to contribute to observable changes in student behavior in PE, in some cases increasing student physical competence, confidence, motivation and overall efficacy.

The study continues the discussion on providing support for teachers of PE who value physical literacy as being integral to a quality PE program. UNESCO (2015) supports the importance of physical literacy, and the field of education has continued to see its growth in educational literature and curriculum documents world-wide (Dudley et al. 2017; Kilborn, 2015). We propose the PLP Framework as an evidence-informed framework that can support teachers of high school PE in operationalizing physical literacy within the high school PE setting. Although we acknowledge that there is much work ahead to further validate the Framework, our introductory case study provides a primary glimpse into how educators can utilize the Framework to help guide PE practice, developing an environment that has the potential to foster physical literacy in all students. The strength of the PLP Framework lies is its value of 'whole-

child' education, where students are stakeholders, and are at the center of any decisions made by teachers and are involved regularly in teaching and learning processes. Further to this, the PLP Framework considers a number of elements necessary in student success, including the expertise of the teacher (knowledge, training and disposition), a curriculum that supports high quality learning experiences, and an environment where students experience the joy of movement, feel supported and thrive, while taking risks and accepting challenges.

The PLP Framework has the potential to support the growth of physical literacy in school settings, but also accepts that a number of conditions have to come together to facilitate student success, including various supports from administration, teacher colleagues, parents and other educational stakeholders; opportunities for teachers of PE to experience continuous professional development (CPD) in the area of physical literacy, and for both continuous school board and provincial and federal government support of physical education and physical literacy. As the title of this chapter suggests, this is only the beginning and there is much to learn as the PLP Framework will continue to be studied across grades and hopefully school divisions. The future holds much promise for teachers of PE who view physical literacy as a concept that supports the, often understated, value of physical education.

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Appendix

Initial Semi-structured interview Questions with Teacher Participants

1. Please state your name, your current designation or position and your educational qualifications.
2. How long have you been teaching? Please name schools, grades and subjects taught.
3. Why did you become a teacher? What led you to teach PE?
4. Let's chat about education, physical education and physical literacy: how would you describe your philosophy towards teaching physical education?
    - Aims/goals of the program
    - What students walk away from your class with
    - What are your biggest challenges teaching PE?
    - What would you change, if anything, about your practice? Why?
5. Describe to me what you know about physical literacy.
    - How do you think physical literacy fits with physical education?
    - Have you attempted to infuse the components or principles of physical literacy into your physical education classes? If so, how?
6. I am presenting to you the PLP Framework and will describe the framework and its components to you. Feel free to stop me at any time with questions about the whole framework, or components of the framework.
7. Is there anything else you would like to share in regards to you as a teacher, or teaching PE?

Exit interview Semi-structured questions with Teacher Participants

1. We are nearing the end of the school year, how do you feel that teaching PE has gone for you this year?
2. How has been part of this study impacted your pedagogical approach to teaching PE if any? Please explain
3. How has been part of this study impacted your knowledge of physical literacy?
4. Looking at the *PLP Framework*, and taking into consideration its individual components, what adjustments/changes would you make to the framework if any? If so, please explain your changes. (Discuss PLP Framework as whole, then each component of the framework)
5. How do you think physical literacy fits with physical education?
6. Is there anything else would like to share before we finish the interview?

Fig 3.0 Physical Literacy Praxis (PLP) Framework

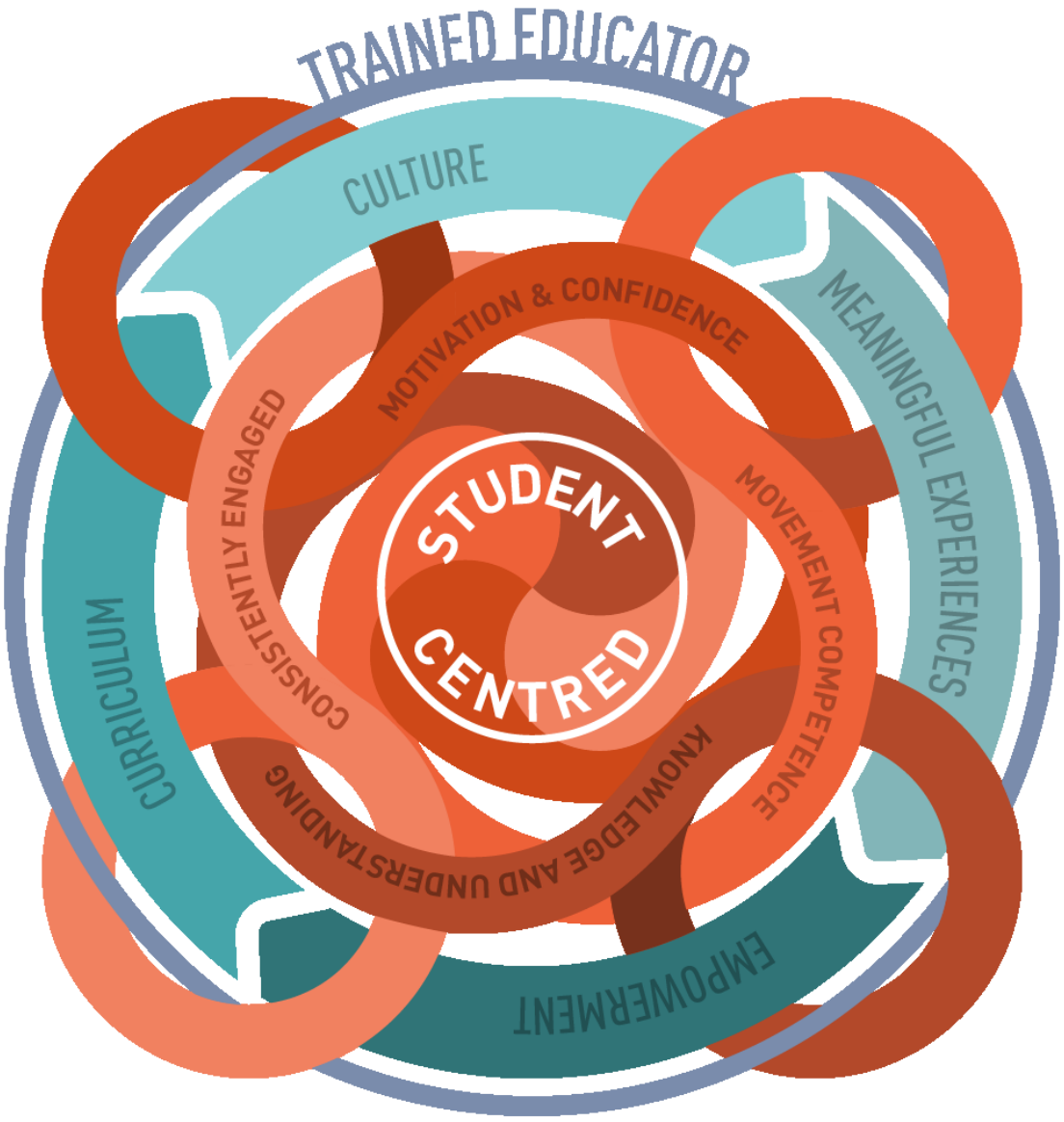

Fig 4.0 Codes for Each Component of the PLP Framework Derived from The Data Set

Applied Physical Literacy in an Urban High School Results

Thematic Analysis (Braun & Clarke, 2006) of findings from Observations, Conversations and Products relating to the Physical Literacy Praxis Framework (PLP)

Initial coding (Braun & Clarke, 2006)

PLP Framework	Initial Data Codes (from 2 interviews and 3 observations)
Trained Educator (TE)	1. Comprehensive knowledge and understanding of Physical literacy beneficial to formulation of lesson planning and infusion 2. Sound understanding of movement education 3. Knowledge of instructional strategies and activities to support all domains of PL 4. Knowledge of how to scaffold learning 5. Consistent professional learning on physical literacy valued 6. Role model 7. Positive disposition towards lifelong PA 8. Credibility with students 9. Presence 10. Understands potential differences in gender attitudes towards PE and PA 11. Knowledge of Alberta PE PoS **Grouping of data codes (themes):** **1,2,3,4,9,10,11 – Deep understanding of Physical Education curriculum, Physical Literacy and sound educational pedagogies (TE1)** **5 – Continued professional development (CPD) on physical literacy (TE2)** **6,7,8 – Educator embodiment of the physical literacy construct (TE3)**
Culture (CUL)	1. Teachers as a role model 2. Purposeful planning of PL domains needed 3. PE teacher must have a strong presence in the learning space – "Warm demander"
	4. Educator disposition that is positive, energetic, humorous, caring, vulnerable and empathetic (personable) 5. Classroom values persistence, personal responsibility, social awareness, independence – "productive struggle" "embrace the struggle" "rise up to adversity" 6. Structure and routine 7. Reflective practice 8. Personal best/personal excellence 9. Learning Community (students as stakeholders) 10. Understand where students are on their PL journey 11. TPSR model (Hellison) 12. Activities built off solid foundation of movement (FMS acquisition) 13. Peer appreciation 14. Appropriate clothing and punctuality valued 15. Greet students individually as they enter activity space 16. Female classes grounding and closure conducted in a circle 17. Relationship with students foundational component – focus on individuals in class 18. Mixed pedagogical approaches (direct instruction, guided instruction etc.) 19. Provides 'certainty' for students by providing weekly and daily agenda 20. Students know expectations 21. Students are stakeholders and therefore have roles and responsibilities within the classroom structure 22. Cooperative activities to start the year ~~23. Traditional forms of masculinity displayed in PE 10 boys class "Be honest and own up to your own mistakes"~~ 24. Kindness to others "What are we all grateful for?" 25. Belonging 26. Time taken to celebrate success **Grouping of data (themes):** **11, 12, 22, 10, 8 - Provides opportunities for students to foster positive disposition towards tenets of physical literacy (CUL1)** **24, 25, 26, 13, 20, 19, 15 - Safe and caring learning environment (CUL2)** **21, 9, 17, 13,- Student centered (CUL3)** **1, 4, 5, Educator embodiment of the physical literacy construct (CUL4)**

	16, 19, 18, 2, 3, 14, 7, 6,, 14, Educative teaching practices and pedagogies (CUL5)
Meaningful Experiences (ME)	1. Social experiences (friends) 2. Activities that create emotion (personal relevance) 3. Joyful experiences 4. Personal challenge "just the right amount of challenge" – offer choices for best fit 5. Music 6. Individualized activities 7. Wide demographic hard to program for 8. Connection to surrounding community and context of students 9. Careful competition 10. Increased motor competence through practiced patterns, sequences and sport-specific skills 11. Social interactions foundational component of classroom culture 12. Task design based on need to cooperate and communicate 13. Tasks designed for reluctant learners in mind – personal relevance **Grouping of data (themes):** **1, 11, - Opportunities for students to socially interact (ME1)** **3, 5, - Experiences that are joyful for students (ME2)** **13, 4, 6, 9, - Just the right amount of challenge (ME3)** **2, 13, 8, - activities and experiences that students 'connect' to (ME4)** **10 – activities that foster motor competence (ME5)**
Empowerment (EMP)	1. Student choice and voice (choice of activities, music, teams,) 2. Teacher provides parameters – student choice within parameters 3. Mentorship and leadership 4. Opportunities to lead and follow 5. Positive reinforcement at every opportunity 6. "Girl Power" 7. Goal setting

	8. Student directed warm up, stretch and some activities ~~9. Conversations with students regarding assessment "Conversations, products and observations"~~ **Grouping of data (themes):** **1, 2, 4 - Teacher provides opportunities for students to feel empowered (EMP1)** **8, 3, 5, 7 - Moving towards independence and embracing the physical literacy journey (EMP2)** **5, 6, - Particular attention to female disposition (EMP3)**
Curriculum (CURR)	1. Knowledge of Alberta PE PoS 2. Understand how components of PL can interact with PE PoS 3. Sport as a vehicle to deliver outcomes 4. Curriculum must be flexible enough for PL to live 5. Wide variety of activities 6. Non-traditional activities 7. Activities that relate to student context 8. Passport for Life used as formative assessment of movement 9. Outcomes A, B and C used as a platform to develop D. 10. Awareness of PL domains and how they can live in Alb PoS 11. Understanding value of MBP advantageous 12. "students must see themselves in curriculum" – cultural understanding – learning experiences develop with this in mind **Grouping of data (themes):** **1, 4, - Flexible PE program of studies (CURR1)** **2, 10, 11, - Deep understanding of parallels between physical literacy and physical education program (CURR2)** **8, 12, 9, 7, 5, 6, 3, - Planned and purposeful activities and assessments that foster physical literacy skills and satisfy demands of PE curricular outcomes (CURR3)**
Movement Competencies (MC)	1. Valid PL assessments needed

	2. PD on PL assessments needed 3. Daily practice of FMS (females) 4. Movement concepts important to reinforce (spatial awareness, body awareness, relationship to objects) 5. Practice of sport skills 6. Repetition based learning 7. FMS interwoven into warm up 8. Solid movement foundation consistent with high levels of participation 9. Game play center of FMS development 10. Durability prioritized 11. Use of Play Tools and Passport for Life (also more PD on this needed) 12. Combinations of movements throughout activities – no isolation 13. When success is experienced by students, teacher moves to more difficult task 14. Phases of movement (prep, execution, follow-through) 15. Emphasis on bilateral symmetry 16. Transition from game play to skill development and back to game play (iterative process) ~~17. Affective domain emphasized in female classes; physical in male class~~ Grouping of data (themes): 2, 3, 11, - Instruments that assess motor competencies (MC1) 5, 6, 12, 13, 14, 15, 8, 7, Repetition-based and scaffolded learning of precise and skillful movement patterns sequences (pathway to success movement experiences) (MC2) 9, 16, Game play as a way to develop movement competencies (MC3) 10 – Durability of student enables daily participation in movement activities (MC4)
Motivation and Confidence (MCON)	1. Better movers, more confident students 2. Allowing for student success in activities increases engagement, participation levels and confidence 3. Self-evaluation to examine perceived motivation and confidence 4. Passport for Life – Active Participation survey 5. Negative energy of some students transfers to class attitude and motivation towards activity 6. Empowering students increases motivation to participate and engage in task

	7. Pre-survey to anticipate participation levels and considerations 8. Confidence is contextual 9. More confidence movers – better body image 10. Experiencing success in activities – increased intrinsic motivation to achieve "personal best" 11. Incentives used to work harder 12. Competition as a motivational tool (particularly in male PE 10 class) 13. Positive reinforcement 14. Formative feedback to move students towards success Grouping of data (themes): 13, 14, 7, 3, 4, 7 – Important to use assessment instruments to understand motivation and confidence levels of students (pre and post surveys) (MCON1) 9, 1, 2, 10 Improved self-concept and increased self-confidence as a result of becoming a better mover, through experiencing success in activities (MCON2) 12, 10, 5, 6, 13, 14, 11 Motivational factors to increase student participation and engagement in activities can be both intrinsic and extrinsic (MCON3) 8 – Confidence is contextual (activity and audience) (MCON4)
Knowledge and Understanding (KU)	1. Elements of TGFU in pedagogy 2. Game sense 3. Strategic questioning and checking for understanding 4. Need to pre-plan questioning for richer discussions and learning 5. Health outcomes of PE 6. Teaching cues 7. Knowledge needed for students to develop fitness plans and enjoy success in other physical activities 8. Flexibility of rules to allow teacher to program for class 9. Weekly self-evaluation tools used 10. Time taken to debrief activities with a view to next class 11. Movement vocabulary 12. Strategic thinking (strategies and tactics for success) 13. Demonstration of understanding 14. The 'why' of doing

	Grouping of data (themes): **5, 11, 14, 7, 9, 13, Students develop and demonstrate knowledge related to components of physical literacy and a deep understanding of how we move with fluency and skill, and why we move (KU1)** **1, 2, 3, 4, 6, 8, MBP as a successful pedagogical framework for infusion of physical literacy components (KU2)** **12, 3, 10, Thinking through movement (KU3)**
Consistently Engaged (CE)	1. **Durability and fitness critical for being active daily** 2. **Station work engages females** 3. **High level of engagement during game play (boys)** 4. **Low-organized games engages all students** 5. **Mastery or close to mastery of skills = high engagement** 6. **Activities that are personally relevant engages students** 7. **Intentional modification of traditional games to increase engagement** 8. **"free-time" experiment to increase engagement** 9. **Structures around "free time" put in place** 10. **Scaffolded tasks** 11. **Teams – "equality of skill"** 12. **Teams – Competitive & non-competitive** 13. **Finding the right amount of challenge** 14. **Small sided games (increased participation)** 15. **Planned and purposeful transitions between activities** 16. **"Chunked" activities** 17. **Brain and body connected** 18. **Females enjoyed personal fitness related activities but not engaged when asked to perform skillful movements** 19. **Great connection with teacher increases willingness to engage in task – relationships** 20. **Mindful of energy expenditure of students during 80+ min class** 21. **Opportunities to interact and play with peers** 22. **Camaraderie** 23. **Engagement in life-long activities; and activities that you can play with friends in community** **Group of data (themes):**
	14, 4, 3, 7, 6, 23 – Carefully selected games, and involvement of gameplay, potential to increase student engagement (CE1) **21, 22, 19, - Peer and teacher involvement advantageous to engagement (CE2)** **18, 1, 2, 6, 23, 11, 12 - Consideration and implementation of pedagogies that help promote female student engagement (CE3)** **16, 20, 17, 15, 10, 11, 12, 8, 9, 5, Implementation of sound, evidence-informed educational practices to increase engagement (CE4)**
Miscellaneous (MIS)	1. **"controlled competition"** 2. **Traditional masculine structures in boys PE class** 3. **Activities that allow for 1 on 1 connections with students** 4. **Intentional language with females "Strong, fit, healthy, self-concept, perseverance, independence, personal best"** 5. **Portion of females struggle with motivation towards PA** 6. **Being aware of female performing difficult tasks in front of peers** 7. **Class culture linked to cultural make up and identity of school** 8. **Strength-based language** 9. ***View Movement competence, confidence and motivation as being a constantly evolving and reciprocal relationship*** 10. ***View movement competence as the spring board for other components of PLP framework*** 11. ***Prioritizes physical and behavioral domains as foundations for success (pyramid: bottom to top – physical, behavioral, cognitive, affective)*** **Grouping of data (themes):** **8, 6, 4, 3 - Close attention paid to pedagogical practices in "female" PE classes (MIS1)** **2, 7, 1, - traditional masculine structures still present in PE culture (MIS2)** **9, 10, 11 – Differences of opinion of components of PLP framework interact, but in agreement of the components articulated in the framework (MIS3)**

Fig 4.1 The Initial Thematic Map

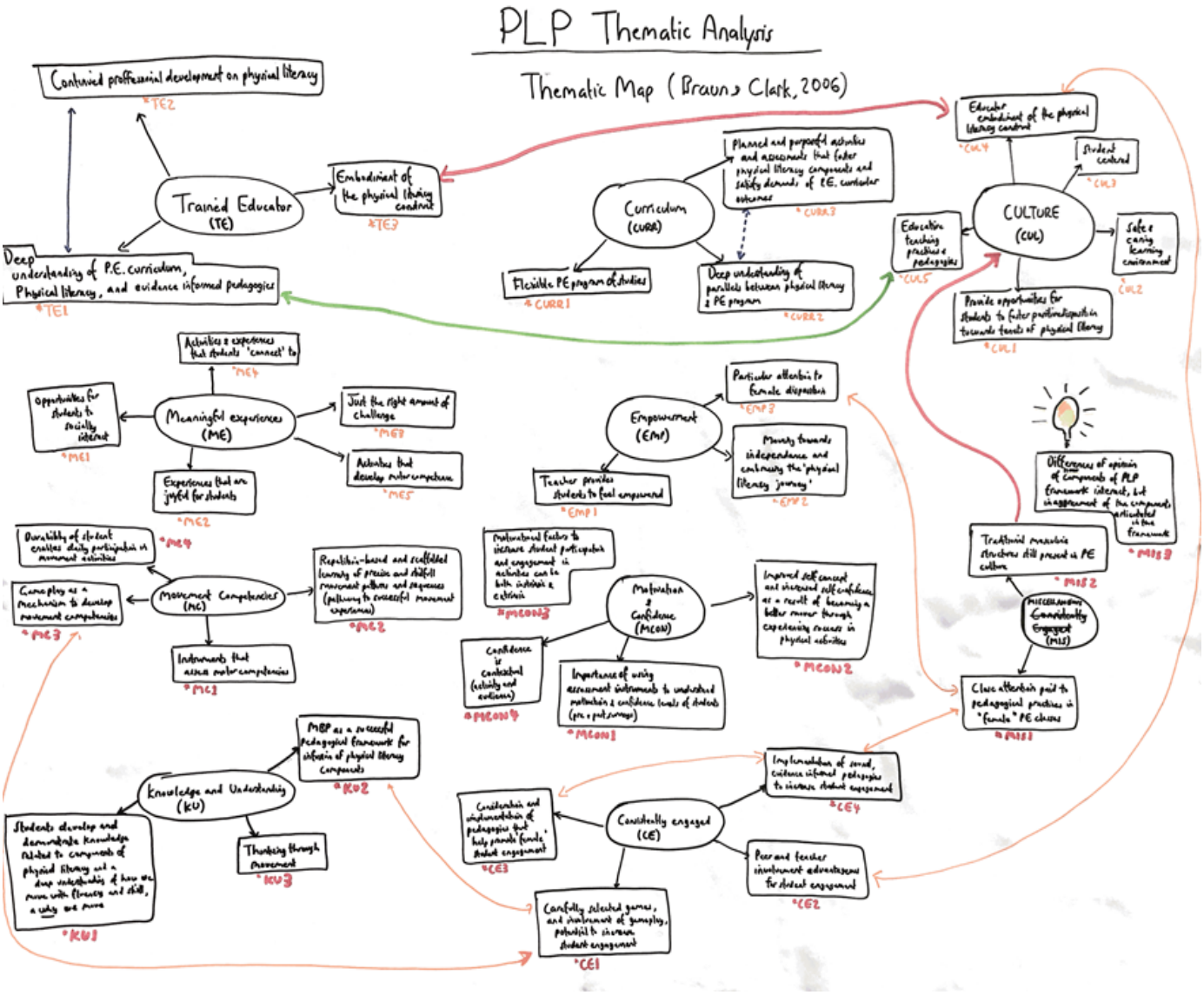

Fig 4.2 Critical Features of the Physical Literacy Praxis Framework