Note of acknowledgement: I would like to thank my research assistant, Michael Fairbrother, for his assistance with gathering the information that is complied and displayed in the three Tables featured in this article.

Many researchers, including the thirty-three featured in this review (31 of whom are featured in Table 2 as well as two additional researchers in Table 3), provincial governments and national and provincial organizations such as Physical & Health Education Canada, ParticipACTION, the Healthy Active Living and Obesity Research Group at the Children’s Hospital of Eastern Ontario Research Institute, as well as Canada Sport for Life have invested interest in improving the health and physical activity of school-aged children in Canada. At first glance, the concept of improvement might be linked to the simplistic notion of getting more children active. Considering the declining rates of physical activity where only 14% of Canadian children aged 5-11 and only 5% of children aged 12-17 meet the guidelines of experiencing 60 minutes of moderate to vigorous activity per day as measured by the 2015 ParticipACTION Report Card on Physical Activity for Children and Youth (ParticipACTION, 2015), efforts to increase physical activity rates are certainly needed and of utmost importance. What this review of research and physical education programs will indicate, however, is that improving the experience of children’s physical activity within and beyond the context of physical education is a complex phenomenon. Considerations for inclusion, diversity in programming, gender, culture, race, social constructions of the body, and child-attuned pedagogies, as this review will address, indicate that the health of the whole child extends far beyond exercise physiological parameters.

Physical Education Curriculum in Canada

To understand what physical education is like in Canada, it is important to have some knowledge of Canada’s geography and political history as no national curriculum exists. Since the 1867 Canadian Constitution Act, each of Canada’s ten provinces and three territories are responsible for their own education that is publically funded through taxation. Approximately 7% of Canadian children are not bound by provincial curriculum standards as they attend either private or First Nations schools (Hickson, Robinson, Berg, & Hall, 2012). Worthy of note is that the population of Aboriginal peoples in Canada is rapidly rising, for example in the province of Saskatchewan the proportion is moving from 3.8% to a predicted 20.8% by 2017, and many attend public schools. Hence, the need to create culturally relevant curriculum is ever pressing (Halas, 2011; Robinson, Borden & Robinson, 2013). Considering the Eurocentric focus inherent in our physical education programming as well as the overwhelmingly 94% proportion of Caucasian physical education faculty members who influence the direction of physical education in Canada (Douglas & Halas, 2013) much reformation needs to occur to align with the recently assembled Truth and Reconciliation Commission of
Canada (Truth and Reconciliation, 2015).

To give a broad overview of how physical education curricula is structured in Canada, three provinces, Manitoba, Ontario and Quebec, have labeled their curricula “Health and Physical Education” (HPE), while the remaining seven have stand alone “Physical Education” (PE) curricula. The three territories borrow curriculum documents from their neighbouring provinces.

The analysis of Canada’s PE and HPE curriculum documents conducted by Kilborn, Lorisso and Francis (2015) is quite helpful in terms of acquiring a sense of the content as well as the time allocated for H/PE programming in schools. Their methodology included a coding of learning outcome statements in each curriculum document, which were then compared to the overall aim statements. Their analysis indicated that the curriculum theme of ‘movement skills’ was most dominant followed by the theme of ‘healthy living’. The theme of ‘fitness’ was less frequent taking on a small tertiary role. When they compared their theme frequency counts to the overall aim statements in each curriculum document there were discrepancies. Regardless of province, the aim of each curriculum document pertained to school-aged children “acquiring the knowledge, skills and attitudes for healthy active living” (Kilborn et al., 2015, p. 7), a concept which 5 provinces align with physical literacy as indicated in Table 1. Yet, the frequent number of learning outcome statements related to ‘movement skills’ suggest that more revision is needed if we are to move away from “an objective, performance-driven and competition-oriented delivery of the curriculum” (p.12). Historic and other pan-Canadian curriculum reviews also confirm the dominance of sport education drills in physical education (Francis & Lathrop, 2011) and the marginalization of dance, and other forms of activity that promote balance, agility and physical fitness (Francis & Lathrop, 2014).

Both the (H)PE curriculum reviews by Kilborn et al. (2015) and Hickson et al. (2012) indicate that time allocated for HPE is marginalized. Students in the province of Prince Edward Island, for example, indicate that only 75 minutes is allocated per week for PE (5% of total school hours). The New Brunswick PE curriculum has the highest percentage of PE time with a recommendation of 150 minutes of PE per week (Kilborn et al, 2015, p. 6). It is up to each school principal how these minutes are allocated throughout the week and in some instance students only receive PE twice per week. The Physical and Health Education (PHE) Canada non for profit organization (www.phecanada.ca) has long rallied for students to experience quality physical education for a minimum of 30 minutes daily by qualified PE teachers. To help support this aim, they offer several award programs (e.g., PHE Quality Daily Physical Education Award Program).

With the recognition that more physical activity time than what is experienced in scheduled PE is required to achieve healthy growth and development, 20 minutes of Daily Physical Activity (DPA) during instructional hours of the school day has been mandated in the provinces of British Columbia, Alberta, Ontario and the Yukon. More than a government mandate is required for DPA to occur, however, as it was introduced as a policy with no accountability system or considerations of other preconditions to ensure its success (Robertson-Wilson & Lévesque, 2009). Despite the benefits of DPA on school achievement (Iancu, Bélanger, Babineau, LeBlanc, Mekary & Poulin-Nadeau, 2013), the barriers as reported by teachers in elementary schools outweigh the likelihood of DPA to be experienced, some of which include: a lack of time due to performance pressures in other subject areas where standardized testing ensues, a lack of resources, a lack of indoor space, and a lack of staff training and ‘buy-in’ (Middlemass Strampel, Martin, Johnson, Iancu, Babineau & Goguen Carpenter, 2014; Rickwood & Breadner, 2015).

With regards to a lack of indoor space and related concerns of safety, one might postulate that students be encouraged to experience DPA outside as recommended by the 2015 ParticipACTION Report Card on Physical Activity for Children and Youth.
Table 1 (Health & Physical Education Provincial Curriculum Documents)*

<table>
<thead>
<tr>
<th>Province</th>
<th>Links to Physical Education Outcomes</th>
<th>Aligns to Physical Literacy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberta</td>
<td><a href="https://education.alberta.ca/teachers/program/pe/resources/pe-guide/">https://education.alberta.ca/teachers/program/pe/resources/pe-guide/</a></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td><a href="https://education.alberta.ca/teachers/program/pe/">https://education.alberta.ca/teachers/program/pe/</a></td>
<td></td>
</tr>
<tr>
<td>Manitoba</td>
<td><a href="http://www.edu.gov.mb.ca/k12/cur/physlth/">http://www.edu.gov.mb.ca/k12/cur/physlth/</a></td>
<td>No</td>
</tr>
<tr>
<td>New Brunswick</td>
<td><a href="https://www.gnb.ca/0000/anglophone-e.asp">https://www.gnb.ca/0000/anglophone-e.asp</a></td>
<td>No</td>
</tr>
<tr>
<td>Newfoundland</td>
<td><a href="http://www.ed.gov.nl.ca/edu/k12/curriculum/guides/physed/#intermediate">http://www.ed.gov.nl.ca/edu/k12/curriculum/guides/physed/#intermediate</a></td>
<td>No</td>
</tr>
<tr>
<td>North West Territories</td>
<td>* adopts Alberta’s Physical Education curriculum</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td><a href="http://education.alberta.ca/teachers/program/pe.aspx">http://education.alberta.ca/teachers/program/pe.aspx</a></td>
<td></td>
</tr>
<tr>
<td>Nova Scotia</td>
<td><a href="http://taphe.nstu.ca/default.asp?id=190&amp;pagesize=1&amp;sfield=content.id&amp;search=31&amp;mn=1.63">http://taphe.nstu.ca/default.asp?id=190&amp;pagesize=1&amp;sfield=content.id&amp;search=31&amp;mn=1.63</a></td>
<td>No</td>
</tr>
<tr>
<td>Nunavut</td>
<td>* adopts Alberta’s Physical Education Curriculum</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td><a href="http://education.alberta.ca/teachers/program/pe.aspx">http://education.alberta.ca/teachers/program/pe.aspx</a></td>
<td></td>
</tr>
<tr>
<td>Ontario</td>
<td><a href="http://www.edu.gov.on.ca/eng/curriculum/elementary/health1to8.pdf">http://www.edu.gov.on.ca/eng/curriculum/elementary/health1to8.pdf</a></td>
<td>Yes</td>
</tr>
<tr>
<td>Quebec</td>
<td><a href="http://www1.mels.gouv.qc.ca/sections/programmeFormation/primaire/pdf/">http://www1.mels.gouv.qc.ca/sections/programmeFormation/primaire/pdf/</a></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td><a href="http://www1.mels.gouv.qc.ca/sections/programmeFormation/secondaire1/pdf/">http://www1.mels.gouv.qc.ca/sections/programmeFormation/secondaire1/pdf/</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>qepsecfirstcycle.pdf</td>
<td></td>
</tr>
<tr>
<td>Yukon</td>
<td>* adopts British Columbia’s Physical Education curriculum</td>
<td>No</td>
</tr>
</tbody>
</table>

*Alignment of physical literacy with provincial curricula based on explicit reference to the term physical literacy in provincial curriculum resources

(ParticipACTION, 2015). Considering the winter climate, however, where temperatures may be as low as -40°C, many schools do not allow children outside once it delves below -20°C. Furthermore, as Hickson et al., (2012) acknowledge, “while one might suspect that within a ‘winter nation’ like Canada, activities such as cross-country skiing, downhill skiing, snowshoeing and, ice-skating might be staple activities within physical education programs, this does not seem to be the case” (p.26). If such activities are offered it is in a ‘one-off’ manner due to limitations of time allocated for PE as well as the cost involved in
purchasing equipment. Several provinces are also turning toward wellness and comprehensive school health models to promote active and healthy living. The provinces of Prince Edward Island and Alberta have redesigned their physical education curricula with a wellness-oriented perspective (Kilborn, 2012). Other provinces are aligning their whole school with health-promoting tenets that interconnect relationships between curriculum, pedagogy, student engagement and leadership, the school environment, as well as partnerships between schools, homes and the community (e.g., Joint Consortium for School Health, 2015; Ontario Ministry of Education, 2015b; PHE Canada, 2015). At the University of Ottawa, this Comprehensive School Health model has been infused in the teacher education program in the hopes that holistic conceptions of health that pertain to the school community may be internalized. Hence, student-teachers experience an environment where they develop the advocacy skills to become champions of school health (see, Comprehensive School Health University of Ottawa, 2015; Lloyd, Whitley, & Olsen, 2013).

**Improving Physical Education through Teacher Education**

Of the 31 professors affiliated with Physical & Health Education Canada’s Research Council (see, PHE Canada Research Council) who responded to an email invitation to be included in this pan-Canadian review, a large proportion situate their research activities in PE teacher education programs while a small percentage conduct research in Canadian schools as the following summary reveals.

Tim Fletcher from Brock University in Ontario has developed an entire program of research (e.g., Fletcher, 2014; Fletcher & Baker, 2015; Fletcher & Casey, 2014) on ‘self-study’ with regard to the ways he introduces concepts in PE, such as Metzler’s (2011) models-based approaches to teaching PE in his teacher education classes. Fletcher’s research is a necessary component for reforming the future of physical education as professor Lynn Randall, from the University of New Brunswick has found that typically there is much resistance for physical education student-teachers to adopt new theoretical models (Randall, 2012).

Other physical education professors also turn to self-study with respect to the formation of teacher identity and how past experiences in PE shape one’s pedagogical practice (Gleddie & Schafer, 2014). Dan Robinson from St. Francis Xavier University’s Faculty of Education and Doug Gleddie from the University of Alberta, for example, write about how they employ humour in their PE teacher education classes with the intention of creating a safe space to critique questionable pedagogical practices (Robinson & Gleddie, 2011). With respect to the ongoing positive physical education teaching practices, professors Shannon Kell from Mount Royal University and Nick Forsberg from the University of Regina research the effectiveness of mentoring to mitigate the tensions experienced by beginning teachers (Kell & Forsberg, 2014).

Roger Leblanc from l’ Université de Moncton in New Brunswick also creates a climate for critical inquiry in his teacher education classes, specifically with regards to notions of inequality that relate to preconceptions of sporting bodies (Ovens, LeBlanc & Brown, 2014). Similarly, Erin Cameron from Memorial University in Newfoundland also addresses the injustices of the schooled healthy body with a particular focus on “embodied injustices” (Cameron, Oakley, Walton, Russell, Chambers & Socha, 2014, p. 696). She also, like Tim Fletcher, also engages in ‘self-study’ (Cameron, 2014, p. 110).

With respect to embodiment and cultivating a teaching praxis that is physically attuned to children’s movement experiences, Stephen Smith from Simon Fraser University is a leader in this area as his program of research dates back to 1991, when he asked, “Where is the child in physical education research?”. Some of his more recent work that relates to the physicality of good teaching, such as cultivating a caring pedagogical disposition, includes
his phenomenological inquiry into caring caresses (Smith, 2012) as well a pedagogy of vital contact (Smith, 2014). His work highly influenced the program of research developed by Rebecca Lloyd which began with a phenomenological inquiry into the cultivation of embodied, interactive pedagogical flow in fitness (Lloyd & Smith, 2006) and continued in the direction of cultivating embodied flow in physical education, (e.g., Lloyd, 2012a; Lloyd, 2015a) and teacher education at large (Lloyd, 2012a).

Tim Hopper from University of Victoria as well as Joy Butler from the University of British Columbia push notions of embodiment further as they align their teacher education practices with complexity thinking which take into consideration actions and interactions between individuals, communities and the environment at large (Ovens, Hopper & Butler, 2013). Rooted in their involvement with the Teaching Games for Understanding SIG (see, TGFU website), they have applied notions of complexity thinking to their teacher education programs. Hopper illustrates this through a technological mapping of the complex learning system in his school-integrated, physical education teacher education program (Hopper, 2013; Hopper, Sanford & Bonsor-Kurki, 2012).

Field-Based Physical Education Research

Tim Hopper’s (2013) complexity-premised research points to the authentic need to not only direct research to teacher education environments but to also situate PE research in the field, i.e., in schools. Joy Butler’s research picks up on this need as she has situated her interest in researching the ethical implications of introducing principles of the Teaching Games through Understanding Approach within school-based physical education programs (Butler, in press; Butler & Robson, 2013).

Maureen Connolly from Brock University has created a particular authentic, field-based environment for her research (Brock University, 2014). She, along with the assistance of graduate students offers an annual summer camp attuned to developmentally appropriate and emotionally sensitive movement experiences for children with Autism Spectrum Disorder (ASD). Through a semiotic phenomenological analysis of her experiences in this camp (Connolly, 2008), she puts forth many thoughtful and sensitive suggestions for creating positive and inclusive learning environments for participants with ASD.

Sandra Gibbons, a professor from the University of Victoria, situates her gender-focused qualitative research in schools and, as a result, offers many practical suggestions for creating meaningful PE environments that encourage female participation (e.g., Gibbons, 2014; Gibbons, Temple, & Humbert, 2014; Gruno & Gibbons, 2014).

The quantitative research put forward by Ken Lodewyk at Brock University (e.g., Lodewyk & Gao, 2013; Lodewyk & Pybus, 2013), offers an alternative perspective on factors, such as gender, that effect participation in physical education. In a survey distributed to 227 tenth-grade students in five Ontario high schools, a grade level where participation in PE is optional, he discovered that “students’ enrolment choice depends on various indices of motivation (e.g., self-efficacy, enjoyment) and performance (e.g., grade) regardless of gender (2013, p. 74). With regards to the content of what motivates students to participate in PE, particularly fitness-based PE, his research also illuminates thought-provoking findings. Results generated from surveying over 500 grade nine and ten students indicate that “students are often not aware of the value of fitness knowledge, its complexity and malleability relative to overall health and well-being” (Lodewyk & Gao, 2013, p.9). As a result, “students with an elevated belief in the simplicity […] and stability of fitness knowledge in PE (unchanging, certain, inflexible, absolute) were prone to having lower intrinsic and extrinsic goal orientation, value, perceived autonomy support, effort regulation, and outcomes relative to fitness (Lodewyk & Gao, 2013, p.9). In other words, what this research indicates is that if fitness is introduced in dull, drill-like regimes, it will have negative effects on student motivation and participation.
Rebecca Lloyd from the University of Ottawa and Stephen Smith from Simon Fraser University have dedicated much time and effort into researching alternative ways to apprehend the tenets of fitness (Lloyd, 2011a; Lloyd, 2015a; Lloyd & Smith, 2012) and become physically literate in activities that fall outside of the dominant paradigm in PE (Lloyd, 2011b; Lloyd, 2012b; Lloyd, 2015a; Lloyd, 2015b; accepted; Lloyd & Smith, 2014). Their website www. Function2Flow.ca details strategies for introducing and assessing alternative, fitness-promoting activities, as well as an interdisciplinary conceptual model for linking principles of movement function to the psychological, ecological and existential tenets of flow.

Another model put forward by a Canadian-based researcher is the “Easy-Play Model” which promotes inclusive and enjoyable sport experiences within and beyond the context of PE (Lu & Steele, 2014). Note that the traditional sports constitutive of PE programming such as basketball, soccer, and volleyball, are encouraged within the Easy-Play framework with the following caveats: self-regulation, optimal competitiveness and encouragement for participants to “play easy on each other (especially against unskilled or novice players) and play hard for each other (e.g., supportive care), which ensures players can successfully develop skills in an optimally competitive environment” (Lu & Steele, 2014, p.232).

The injustices in physical education that pertain to Aboriginal youth have been most notably taken up by Joannie Halas from the University of Manitoba for the past ten years (e.g., Halas, 2011; Douglas & Halas, 2013) and more recently by Daniel Robinson from St Francis Xavier University in Nova Scotia (Robinson, Borden & Robinson, 2013) and Joe Barret from Brock University (Cherubini & Barrett 2013).

A Summary of Canadian Physical Education Researchers and Teacher Educators

To supplement this overview of PE research in Canada, the following table (see Table 2.) provides at-a-glance contact information for PHE Canada affiliated professors as well as a listing of their particular areas of expertise.

An Overview of Physical Literacy and Physical Education Curriculum Supports

Several organizations are also included in this review (see Table 3.) as they relate to the assessment and conceptualization of physical literacy within and beyond the PE context, e.g., (a) Physical & Health

<table>
<thead>
<tr>
<th>Name of Professor, Title, and Institution</th>
<th>Contact information</th>
<th>Research Interests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kellie Baker, PhD (candidate), Professional Associate, School of Human Kinetics and Recreation, Memorial University</td>
<td><a href="mailto:kmbaker@mun.ca">kmbaker@mun.ca</a></td>
<td>models-based practice in physical education; self-study of teacher education practices</td>
</tr>
<tr>
<td>Joe Barrett, EdD, Associate Professor, Department of Teacher Education, Brock University</td>
<td><a href="mailto:jbarrett@brocku.ca">jbarrett@brocku.ca</a></td>
<td>school health policy; school-based health education; school-based physical activity programming; HPE teacher self-efficacy; teacher-coach role conflict; physical and health education teacher education; analogy learning; HPE teacher identity discourse; Aboriginal teacher education</td>
</tr>
</tbody>
</table>

Table 2 Physical Education Researchers across Canada (alphabetical by last name)
<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Website</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joy Butler</td>
<td><a href="mailto:joy.butler@ubc.ca">joy.butler@ubc.ca</a></td>
<td><a href="http://edcp.educ.ubc.ca/faculty-staff/joy-butler/">http://edcp.educ.ubc.ca/faculty-staff/joy-butler/</a></td>
<td>action research; assessment; children and youth; curriculum studies research; pedagogy; teacher education research; teacher research; constructivism; complexity thinking; situated ethics; community wellness; physical education teacher education; curriculum innovation and change; teaching and learning in sports</td>
</tr>
<tr>
<td>Erin Cameron</td>
<td><a href="mailto:ecameron@mun.ca">ecameron@mun.ca</a></td>
<td><a href="http://www.faculty.mun.ca/ecameron/">http://www.faculty.mun.ca/ecameron/</a></td>
<td>health promotion; critical obesity scholarship; social justice education and stigma; constructions of health, body image and identity; health education and curriculum and pedagogy; physical education curriculum and pedagogy; qualitative research methods; wellness education</td>
</tr>
<tr>
<td>Antony Card</td>
<td><a href="mailto:acard@grenfell.mun.ca">acard@grenfell.mun.ca</a></td>
<td><a href="http://www.grenfell.mun.ca/research/avp-research/Pages/about.aspx">http://www.grenfell.mun.ca/research/avp-research/Pages/about.aspx</a></td>
<td>physical education curriculum development; pedagogy and educational technology; comprehensive school health; outdoor education; childhood obesity; healthy living</td>
</tr>
<tr>
<td>Catherine Casey</td>
<td><a href="mailto:caseyc@cc.umanitoba.ca">caseyc@cc.umanitoba.ca</a></td>
<td><a href="http://umanitoba.ca/faculties/education/directory/casey.html">http://umanitoba.ca/faculties/education/directory/casey.html</a></td>
<td>curriculum development; health education; mandatory PE in Manitoba K-12; physical education; teacher education/teacher development; teaching games for understanding</td>
</tr>
<tr>
<td>Maureen Connolly</td>
<td><a href="mailto:mconnolly@brocku.ca">mconnolly@brocku.ca</a></td>
<td><a href="http://www.brocku.ca/applied-health-sciences/faculty-directory/kinesiology/maureen-connolly">http://www.brocku.ca/applied-health-sciences/faculty-directory/kinesiology/maureen-connolly</a></td>
<td>semiotics and phenomenology for designing meaningful movement and activity programs for persons with disabilities (esp. high needs and Autism); meaningful functional and expressive movements; stressed embodiment; role of the body in learning and teaching</td>
</tr>
<tr>
<td>David Chorney</td>
<td><a href="mailto:dchorney@ualberta.ca">dchorney@ualberta.ca</a></td>
<td><a href="https://sites.google.com/a/ualberta.ca/davidchorney/">https://sites.google.com/a/ualberta.ca/davidchorney/</a></td>
<td>physical education teacher education; curriculum theory in physical education; technology integration within teaching of physical and health education</td>
</tr>
<tr>
<td>Tim Fletcher</td>
<td><a href="mailto:tfletcher@brocku.ca">tfletcher@brocku.ca</a></td>
<td><a href="http://www.brocku.ca/applied-health-sciences/faculty-directory/kinesiology/tim-fletcher">http://www.brocku.ca/applied-health-sciences/faculty-directory/kinesiology/tim-fletcher</a></td>
<td>teacher socialization; teacher identity; preservice teacher education, models-based approaches to teaching physical education; self-study of teacher education practice; social and emotional learning through physical education</td>
</tr>
<tr>
<td>Name</td>
<td>Email</td>
<td>Website</td>
<td>Research Focus</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------</td>
<td>----------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nancy Francis, EdD,</td>
<td><a href="mailto:nfrancis@brocku.ca">nfrancis@brocku.ca</a></td>
<td>website: <a href="http://www.brocku.ca/applied-health-sciences/faculty-directory/kinesiology/nancy-r-francis">http://www.brocku.ca/applied-health-sciences/faculty-directory/kinesiology/nancy-r-francis</a></td>
<td>curriculum and pedagogy for promoting physical literacy and dance education; movement experiences as a site for embodied learning; effective, inclusive pedagogy for diverse learners in expressive and functional movement contexts</td>
</tr>
<tr>
<td>Sandra Gibbons, PhD,</td>
<td><a href="mailto:sgibbons@uvic.ca">sgibbons@uvic.ca</a></td>
<td>website: <a href="http://www.uvic.ca/education/exercise/people/faculty-staff/faculty-profiles/gibbons.php">http://www.uvic.ca/education/exercise/people/faculty-staff/faculty-profiles/gibbons.php</a></td>
<td>increasing meaningful participation of girls and young women in school-based physical education programs; team building and authentic assessment for developing self-esteem and fair play</td>
</tr>
<tr>
<td>Doug Gleddie, PhD,</td>
<td><a href="mailto:dgleddie@ualberta.ca">dgleddie@ualberta.ca</a></td>
<td>websites: <a href="http://www.elementaryed.ualberta.ca/en/People/AcademicStaff/Doug%20Gleddie.aspx">http://www.elementaryed.ualberta.ca/en/People/AcademicStaff/Doug%20Gleddie.aspx</a></td>
<td>K-12 physical education; educative narratives in movement and physical education; role of play, fun and joy in physical education pedagogy; intrinsic motivation in physical education;</td>
</tr>
<tr>
<td>Joannie Halas, PhD,</td>
<td><a href="mailto:Joannie.Halas@umanitoba.ca">Joannie.Halas@umanitoba.ca</a></td>
<td>website: <a href="http://umanitoba.ca/faculties/kinrec/about/halas.html">http://umanitoba.ca/faculties/kinrec/about/halas.html</a></td>
<td>theories of culturally relevant pedagogy; critical race theory; anti-racist education; issues of access to quality and culturally relevant physical education for Aboriginal and other under-represented youth in physical education; community-based, action research; urban Aboriginal physical activity, sport and recreation; development of delivery of Aboriginal Youth mentorship programs</td>
</tr>
<tr>
<td>Clive Hickson, PhD,</td>
<td><a href="mailto:chickson@ualberta.ca">chickson@ualberta.ca</a></td>
<td>website: <a href="http://www.elementaryed.ualberta.ca/en/People/AcademicStaff/CliveHickson.aspx">http://www.elementaryed.ualberta.ca/en/People/AcademicStaff/CliveHickson.aspx</a></td>
<td>effective teaching in physical education; new professor development; mentorship programming; impact of school leadership on K-12 health and PE programming; experiences of university instructional staff in teaching student cohort groups</td>
</tr>
<tr>
<td>Tim Hopper, PhD,</td>
<td><a href="mailto:thopper@uvic.ca">thopper@uvic.ca</a></td>
<td>websites: <a href="http://web.uvic.ca/~thopper/WEB/">http://web.uvic.ca/~thopper/WEB/</a></td>
<td>teacher education in physical education; complexity thinking; school integrated teacher education</td>
</tr>
<tr>
<td>Name</td>
<td>Email</td>
<td>Website</td>
<td>Interests</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Horia-Daniel Iancu, PhD, Associate Professor, School of Kinesiology and Leisure, Faculty of Health Sciences and Community Services, University of Moncton</td>
<td><a href="mailto:horia-daniel.iancu@umoncton.ca">horia-daniel.iancu@umoncton.ca</a></td>
<td><a href="http://professeur.umoncton.ca/umcm-iancu_horiadaniel/node/1">http://professeur.umoncton.ca/umcm-iancu_horiadaniel/node/1</a></td>
<td>physical education; human psychomotor; sports training; sports performance (tennis); well-being in schools and in the workplace; daily quality physical education;</td>
</tr>
<tr>
<td>Shannon Kell, PhD, Assistant Professor, Department of Physical Education and Recreation Studies, Mount Royal University</td>
<td><a href="mailto:skell@mtroyal.ca">skell@mtroyal.ca</a></td>
<td><a href="https://mtroyal.ca/ProgramsCourses/FacultiesSchoolsCentres/HealthCommunityStudies/Departments/PhysicalEducationandRecreationStudies/Faculty/sKell.htm">Website</a></td>
<td>physical education pedagogy; teacher education; outdoor leadership; physical literacy;</td>
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<td>Michelle Kilborn, PhD, Assistant Professor, School of Human Kinetics and Recreation, Memorial University</td>
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<td>reconceptualising curriculum and pedagogy in physical education; curriculum theory; wisdom traditions; wellness; philosophy in physical education; action research; autobiographical research</td>
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<td><a href="http://professeur.umoncton.ca/umcm-leblanc_roger/">Website</a></td>
<td>wellness in the workplace; abuse and homophobia in sport; sport for international development</td>
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<td>Rebecca J. Lloyd, PhD, Associate Professor, Interdisciplinary Education, University of Ottawa</td>
<td><a href="mailto:Rebecca.Lloyd@uOttawa.ca">Rebecca.Lloyd@uOttawa.ca</a></td>
<td><a href="http://function2flow.ca/">Websites</a> <a href="http://education.uottawa.ca/en/people/lloyd-rebecca-j">http://education.uottawa.ca/en/people/lloyd-rebecca-j</a> <a href="http://www.uOttawa-comprehensive-school-health.ca">www.uOttawa-comprehensive-school-health.ca</a></td>
<td>phenomenology; flow; movement consciousness; physical education pedagogy; alternative physical activities; teacher education; comprehensive school health</td>
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<td>relations between instructional practices, motivation, beliefs, life skills, achievement, and physical and health literacy, in movement settings (physical and health education, recreation, sport)</td>
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<td>Chunlei Lu, PhD, Associate Professor, Faculty of Education, Brock University</td>
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<td><a href="http://www.brocku.ca/education/directory/teachered/clu">Website</a></td>
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<td>Name</td>
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<td>international development through physical education and sport; development of life skills through sport and physical education; physical literacy pedagogy; health promoting schools; teaching games for understanding</td>
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<td>Associate Professor,</td>
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<td>Faculty of Applied Health</td>
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<td>improving the quality of physical education programs for k-12 public school students; development of physical education pedagogical content knowledge in teachers; application of university course work to professional practice</td>
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<td>Jennifer Robertson-Wilson,</td>
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<td>exercise psychology; sport psychology; behaviour change and physical activity; health promotion; psychology of physical activity; school physical activity policies; built environment and physical activity and obesity; social ecology research methods</td>
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<td>PhD, Associate Professor,</td>
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<td>Wilfrid Laurier University</td>
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<td>Greg Rickwood, PhD,</td>
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<td>physical education in secondary schools; cultural systems; school-based physical activity opportunities</td>
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<td>Schulich School of Education, Nipissing University</td>
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<td>physical and health education teacher education; culturally relevant pedagogy, mentorship; active transportation education programs; service learning</td>
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<td>Francis Xavier University</td>
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<td>Lee Schaefer, PhD,</td>
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<td>teacher knowledge; teacher identity; teacher retention and attrition; urban Aboriginal wellness at school, home and community; autobiographical inquiry in physical education teacher education; implications of narrative inquiry as pedagogy in physical education</td>
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<td>Assistant Professor,</td>
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<td>University of Regina</td>
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<td>Joanna Sheppard, PhD,</td>
<td><a href="mailto:Joanna.Sheppard@ufv.ca">Joanna.Sheppard@ufv.ca</a></td>
<td>website: <a href="http://www.ufv.ca/kpe/faculty-and-staff/faculty-members/joanna-sheppard/">http://www.ufv.ca/kpe/faculty-and-staff/faculty-members/joanna-sheppard/</a></td>
<td>physical education pedagogy; health education pedagogy; daily physical activity; life skill teaching; teaching games for understanding</td>
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<td>Associate Professor,</td>
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<td>Kinesiology and Physical</td>
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<td>Education, University of the Fraser Valley (UFW)</td>
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</table>
Karen Sirna, PhD, Instructor and Diploma Coordinator  
Sport Science, Faculty of Science and Technology, Douglas College  
sirnak@douglascollege.ca  
pedagogy and cultural studies related to physical education, sport and the body; structures influencing knowledge production and the impact on activity and health choices

Stephen Smith, PhD, Associate Dean, Faculty of Health Sciences, Simon Fraser University  
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website: https://www.sfu.ca/education/faculty-profiles/ssmith.html  
movement consciousness and disciplinary forms such consciousness is developed, K-12 HPE programs, pedagogy of educating physically and healthily; acquisition of movement competence; gesture theory; health education; teaching and teacher education

### Table 3  Physical literacy & PE tools and resources

<table>
<thead>
<tr>
<th>Organization</th>
<th>Key facts about the program</th>
<th>Affiliated research, integral researchers, and connected associations</th>
</tr>
</thead>
</table>
| HALO’s Canadian Assessment of PL (CAPL) | • Established in 2007 in response to the obesity crisis  
• Comprehensive protocol for accurately and reliably assessing skills & abilities contributing and characterizing the PL levels of participating children  
• Assesses daily behaviour, motivation & confidence, knowledge & understanding, and physical competence  
Use municipal, provincial, national and international partnerships to create, promote, sustain and evaluate healthy active living initiatives that impact children and youth | • HALO is a research group at the Children’s Hospital of Eastern Ontario (CHEO) Research Institute  
• In 2013 HALO had 74 peer-reviewed publications and 36 published abstracts and delivered 102 scholarly presentations in 11 countries  
• Contact: mtremlay@cheo.on.ca  
• List of research interests/affiliations: http://www.haloresearch.ca/about-us/  
• Research and Practice institutions partnered with: http://www.haloresearch.ca/research/ |
| CS4L Physical Literacy Assessment for Youth (PLAY) Tools | • Created for ages 7 and up  
• Consists of a range of experts employed independently of CSL4  
• Tools can be used for: research; program evaluation; engagement of children and parents; surveillance; and for awareness  
• Tools created to improve population’s level of PL and to determine gaps in individuals’ PL development  
Comprises a group of tools (PLAYfun, PLAYbasic, PLAYself, PLAYparent, PLAYcoach, and PLAYinventory) | • Supported by Sport Canada since 2005  
• Partnered with:  
Passport for Life  
Active for Life  
• CS4L content: http://canadiansportforlife.ca/resources  
• Play Tools created by Dr. Dean Kriellaars, Associate Professor, Department of Physical Therapy, School of Medical Rehabilitation, Faculty of Medicine, University of Manitoba: http://www.physicalliteracy.ca/node/48 |
| Physical and Health Education (PHE) | • PHE is a national advocate for issues related to physical activity, physical education and health education influencing the development of Canadian children and youth  
• Members are school educators and administrators and university professors  
• PFL supports awareness and development of PL among students and teachers  
• PFL is intended to be used as an ongoing, formative, and information tool  
• Currently available for teachers of grades 3 to 9  
• PFL has four components: active participation; living skills; movement skills; fitness skills | • PHE Research council is a national council organized under the auspices of PHE Canada (http://www.phecanada.ca/about-us/research-council) with the goal to create a collaborative and coherent voice for scholars and professionals in the fields of PHE teaching and research in Canada and internationally.  
• Provides a form for dissemination through the PHEnex Journal/Revue phénEPS (http://www.phecanada.ca/resources/phenex-journal)  
• Compilation of University researcher interests (http://www.phecanada.ca/sites/default/files/cupr_-_memeber_research_interests_dec2011.pdf) |
| --- | --- | --- |
| Canada’s Passport for Life (PFL) | • Originated in 1921  
• Ophea is a not-for-profit organization that champions healthy, active living in schools and communities through quality programs and services, partnerships and advocacy,  
• Is led by the vision that all children and youth value and enjoy the lifelong benefits of healthy and active living  
• Produces a variety of health and physical education tools including lesson plans, activities and supplements  
• Support the Ontario H&PE curriculum | • Ophea produces a number of articles about how their tools are used (mostly in schools) and though they are not academic articles will provide information on the versatility of their application in H&PE: http://www.ophea.net/article/owning-game#.Va6EFFnKOXc  
• University affiliations connected to Ophea: Brock University-The Centre for Healthy Development through Sport and Physical Activity; University of Ontario Institute of Technology; University of Toronto; University of Waterloo (Population and Health Research Group)  
• For a complete list of a connections and affiliations go to: http://www.ophea.net/about-us/partners |
| Ophea Healthy Schools Healthy Communities Teaching Tools | • Is a connecting point and hub for advancement of comprehensive school health and wellness in Alberta schools  
• A leader in provision of competency focused learning opportunities, resources and curricular expertise  
• Spearheads collaboration between the health, education, recreation and active living sectors  
EAS provides resources for helping schools improve educational outcomes focused in healthy and active living processes | • EAS has a number of partnerships working more at a practical than at an academic level. Connect to the following link for a description: http://www.everactive.org/partnerships-and-services-1?id=1396  
• Rather than academic articles EAS provides a link to related blogs: http://www.everactive.org/blog |
Lloyd: Approaches to Improve Physical Education in Canadian Schools

| Action Schools! BC | • Is a best practices whole-school model designed to assist elementary and middle schools in creating and implementing individualized action plans to promote healthy living while achieving academic outcomes and supporting comprehensive school health
• Is a source for professional development, curriculum-linked inclusive resources and support, and student leadership training
• Program is framed within a socio-ecological model
Supports public, independent, First Nations and Francophone schools in British Columbia
• Ongoing research is supported through consultation with researchers
• Supports and materials are evidence-based. See: http://www.actionschoolsbc.ca/model/evaluation-articles
• In 2006-2008 the Action Schools! BC Support Team worked with researchers from UBC’s Pediatric Residency Program and BC Children’s Hospital to provide a school-based collaborative oral health program
• Action Schools! BC is featured as a case study by the Heart and Stroke Foundation in collaboration with the Propel Centre for Population Health Impact
• Connect to 13 articles and case studies involving Action Schools BC!
• http://www.actionschoolsbc.ca/node/3900, and http://www.actionschoolsbc.ca/model/evaluation-articles/action-schools-bc-related-articles for a look at 34 Action Schools! BC related articles

| Active Kids Healthy Kids (AKHK) | • Purpose is to increase number of children and youth that participate in at least 60 minutes of exercise per day
• Components of AKHK are: leadership and policy, community mobilization, active community environments, public awareness, and research, evaluation and knowledge transfer
• Provides a number of resources that can be located on their website
• Conducts a surveillance study every 4 years monitoring provincial and regional trends. See, the following link for more information and access to other AKHK associated research and partners: http://novascotia.ca/dhw/pasr/akhk-research.asp

Note. Information in this table was taken directly from webpages that are directly linked to the following homepages: https://www.capl-ecsfp.ca/, http://www.physicalliteracy.ca/, http://www.physicalliteracy.ca/, www.everactive.org/home, http://www.actionschoolsbc.ca/ and http://novascotia.ca/dhw/pasr/akhk-intro.asp. The information in this table is meant to be a summary of key facts and a link to further information on the three main physical literacy tools in Canada. Some of the information in this table is taken directly from these websites.

Education Canada (PHE Canada, 2015/), (b) the Healthy Active Living and Obesity (HALO) research Group at the Children’s Hospital of Eastern Ontario (CHEO) Research Institute (CHEO Research Institute, nd,) who put forth the Canadian Assessment of Physical Literacy (Healthy Active Living and Obesity Research Group, 2015) and (c) Canada Sport for Life (Canadian Sport for Life, nd). Worthy of note is that conceptions of ‘Physical Literacy’ put forth by these associations are incongruent even though their motivation to promote healthy active living in children and youth is shared. Several organizations are also included in Table 3 as they provide curriculum support for PE teachers to put complex PE concepts, such as physical literacy, into practical action.

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