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Assessing physical literacy in health and physical education

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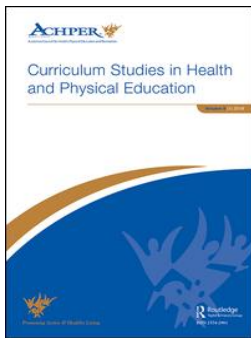
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Assessing physical literacy in health and physical education

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ABSTRACT

This paper utilises Bernstein's theorising of curriculum and pedagogical relations to analyse Physical Literacy (PL) assessment with implications for the field of Health and/Physical Education (H/PE). It acknowledges the significance of assessment for what knowledge and skills are valued in PL and in turn, H/PE. PL takes different forms and is assessed in a range of ways. Bernstein's concepts of classification and framing are used to analyse six PL assessment tools identified through a systematic review of literature. Findings suggest that current PL assessment tools mainly feature strong classification and framing, pointing towards enactment of PL that both tightens and narrows curriculum and pedagogic possibilities. Examples are also identified with weaker classification and framing. We conclude that PL and its assessment, *could* have a role to play in opening up the domains considered important for lifelong and life wide participation, across schooling and community, individually tailored to accommodate student ownership and voice. Or not.

Introduction

Physical Literacy (PL) is described widely as 'the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life' (International Physical Literacy Association [IPLA], 2017). The global presence of the concept of PL has greatly expanded in recent times (Young, O'Connor, & Alfrey, 2019), its case pressed initially by a range of private or professional foundations, including the IPLA and Canadian Sport for Life, and scholars. In some countries such as Canada, PL forms part of the official texts of Health and/Physical Education (H/PE) curriculum (see for example, Government of British Columbia, 2019). In other instances, tools and resources intended to support teaching and/or assessment of PL in H/PE originate from a variety of other sources, including universities, sport agencies, not-for-profit, charitable and commercial organisations. This paper is specifically concerned with the key role that assessment tools for PL have in shaping how PL is understood, expressed and enacted both within and beyond H/PE, and ultimately therefore, who is (and can be) deemed physically literate.

Following Hay and Penney (2013), we understand assessment as a transmitter of the knowledge, skills and understandings that are most valued in H/PE and acknowledge that assessment discourses will often be a key driver of curriculum and pedagogy in H/PE. The value transmission that Hay and Penney (2013) refer to, is recognised here as explicit or implicit in assessment tools, resources and practices associated with PL. PL tools, resources and practices are acknowledged as fundamental in maintaining or, in contrast, challenging and prospectively transforming dominant discourses, practices and relations in H/PE. Within H/PE, assessment practices have in the past been critiqued for having an overly technical, performative or product focus, as in the case of narrowly and objectively assessing fundamental motor skills or fitness, combined with an interest in student management, as opposed to student learning (Hay, 2006; López-Pastor, Kirk, Lorente-Catalán, MacPhail, & Macdonald, 2013; Penney, Brooker, Hay, & Gillespie, 2009). Notably, existing scholarship suggests that a range of perspectives exist towards assessment of PL (Edwards et al., 2017; Green, Roberts, Sheehan, & Keegan, 2018; Whitehead, 2019). Some scholars acknowledge that positioning PL within H/PE means that it must always be understood in relation to curriculum, pedagogy and assessment of and for learning (e.g. Hyndman & Pill, 2018). Other scholars, however, prioritise the assessment of often isolated physical movement and skill competency (e.g. Cools, De Martelaer, Vandaele, Samaey, & Andries, 2010). In an attempt to better understand how the assessment of PL is conceptualised around the globe and extend insights into the pedagogic significance of PL assessment tools, we employ Bernstein's (1971, 1990, 2000) concepts of classification and framing in analysis of six examples of PL assessment tools identified through a systematic review of literature. Existing literature and commentary related to PL and the assessment of PL is now shared, before expanding upon the theoretical perspective that underpins this paper.

Physical literacy and health and physical education

Pioneered by Margaret Whitehead (1993, 2001), PL is a concept that was originally underpinned by the philosophical concepts of phenomenology, existentialism and monism, though over time, PL has evolved into an increasingly fluid and pluralistic concept that according to Young et al. (2019), is subject to multiple levels of abstraction. As Young et al. (2019) identified, some conceptualisations align closely with Whitehead's original conceptualisation of PL, while others are more abstract with fewer attributes connecting them to early versions. At the same time as being subject to multiple levels of abstraction, the role of PL within or alongside H/PE is the subject of debate, taking on different forms, with varying degrees of influence in the development of H/PE curriculum around the globe.

The extent to which PL fits alongside or within H/PE is a source of debate across different jurisdictions. At one end of the spectrum, the British Columbia Physical and Health Education curriculum in Canada, positions PL as an explicit feature of the 'Goals and Rationale', the 'Big Ideas', and also as one of the four 'Curricular Competencies' (Government of British Columbia, 2019). In the name of PL students are expected to, for example, 'Develop, refine, and apply fundamental movement skills in a variety of physical activities and environments' as well as, 'develop and apply a variety of movement concepts and strategies in different physical activities'. They are also expected to know, for example,

'proper technique for fundamental movement skills, including non-locomotor, locomotor, and manipulative skills' (Government of British Columbia, 2019).

In comparison to the aforementioned curricula, PL does not feature in the official texts for the Australian Curriculum H/PE (Australian Curriculum, Assessment and Reporting Authority, n.d.) or its State and Territory derivatives (Macdonald & Enright, 2013). That said, the New South Wales (NSW) government released a PL continuum to be used in conjunction with the NSW grades K-10 Personal Development, Health and Physical Education (PDHPE) curriculum. According to the NSW Government (2015), the PL continuum assists in differentiating learning, thus 'by mapping students' achievements against the continuum markers, teachers can identify where to next for groups or individuals with particular learning needs' (p. 2).

Sport Australia also recently released the Australian Physical Literacy Framework (Sport Australia, 2019a). In order to monitor PL, Sport Australia has identified four domains (physical, psychological, social and cognitive) and thirty elements (see Sport Australia, 2019b). For each of the interrelated elements, such as movement skills and confidence, there are five stages of development through which an individual can progress (or regress) (Sport Australia, 2019b). The Australian Physical Literacy Framework (Sport Australia, 2019a, p. 10) 'is intended for individuals to develop their physical literacy and those who work with others to support their development' as such, it 'can assist educators to assess student capabilities and identify areas for development across all four domains'.[1]

In the examples shared above we can see that PL is beginning to infiltrate the 'official pedagogic discourse' (Bernstein, 1990, p. 196) of these and other curricula in countries such as Wales (Aldous, 2018) and the United Sates (Society of Health and Physical Educators [SHAPE], 2014). In the section that follows, we briefly outline wider perspectives on PL and assessment before exploring insights from Bernstein to better understand assessment in PL.

Physical literacy and assessment

Whitehead (2010, 2019) proposes the 'charting' of an individuals' PL journey rather than an assessment of their progress per se. Moreover, Whitehead (2001, 2019, p. 74) has stressed that PL is not a state to be 'attained and then maintained thereafter', and it is thus inappropriate to assess if an individual is 'physically literate'. There is some dissonance between Whitehead's (2001, 2010, 2019) proposal as it related to the assessment of PL, and the ways in which PL is assessed internationally. A number of scholars, including Lundvall (2015), McCaffrey and Singleton (2013) and Tompsett, Burkett, and McKean (2014), have identified and discussed the tensions that arise 'when physical literacy is subject to summative evaluations' (Robinson & Randall, 2017, p. 44). Indeed, Robinson and Randall (2017) draw on Lundvall (2015) to suggest that positioning an abstract concept such as PL into a school context for learner mastery, is often 'misguided and questionable' (p. 44). At the heart of Lundvall's (2015) critique, is a key question around the legitimacy, and indeed possibility, of assessing components of PL such as empowerment and embodiment. Indeed, Edwards et al. (2017) presented a systematic review of efforts to measure or assess PL and revealed that 'the concept cannot be measured/assessed in a traditional and conventional sense using simplistic and linear methods' (p. 678). They

suggested that the more common quantitative measures of PL tended to be less aligned with its holistic philosophy defined by Whitehead (2001, 2010, 2019). Similar to the argument presented by Young et al. (2019), they encouraged those engaging with PL to be explicit about the definition, or level of abstraction, they are aligning with.

To better understand the underlying message systems of PL and its assessment, we share the theoretical perspective we approach the phenomena of PL from, and the methods we used to systematically review the relevant literature.

Bernstein's insights for assessment in H/PE

Our research is theoretically driven by Bernstein's (1971, 1990, 2000) conceptualisations of knowledge and pedagogical relations. Pertinent to this paper, is the relationships between curriculum, pedagogy and assessment. More particularly, conceptual tools presented by Bernstein prompt and enable critical examination of both the overt and subtle ways in which PL assessment tools and resources prospectively shape teaching and learning in H/PE.

In directing attention to various PL assessment tools and resources, our research centres on what Bernstein (1990) termed *recontextualizing* fields and agents within them, active in mediating discourse relations between the field of *knowledge production* and the field of *reproduction of discourse*. In Bernstein's terms, the intellectual knowledge and associated discourses of PL arise in the field of knowledge production. Recontextualization involves agents in the official recontextualizing field (ORF) associated with state and jurisdictional departments, agencies and sub-agencies. It also includes others in the pedagogic recontextualizing field (PRF), including publishers of H/PE materials, professional associations and may 'extend to fields not specialised in educational discourses and its practices but which are able to exert influence both on the State and on its various arrangements and/or upon special sites, agents and practices within education' (Bernstein, 1990, p. 60). The PRF thus encompasses sport agencies, for example, invested in the translation of PL into particular practices in H/PE and/or sport programs.

In this research, the focus is on the role of assessment tools in this process. We identify assessment tools as a mechanism via which recontextualizing agents regulate and shape the discursive and pedagogic possibilities inherent in the pedagogic discourse of PL. These possibilities are ultimately reflected in the understandings and enactments of PL in sites associated with the field of reproduction, including tertiary, secondary and primary education (Bernstein, 1990).

In considering PL assessment through a Bernsteinian lens, we note Penney, Petrie, and Fellows (2015) observation that policy and pedagogic relations in H/PE are complex and fluid. They highlighted that in New Zealand, other sectors of government and other agencies were influential in the ORF and that the distinction between the ORF and PRF was being blurred amidst changing relations between sport and education policy. Here we identify PL developments, and the production of assessment tools in particular, as similarly reflecting complex and shifting policy relations for H/PE. Our interest in examining PL assessment reflects that the specific nature of PL assessment texts produced by agents in the PRF is important for the broader flow of discourses within and between the ORF and PRF, and between these recontextualizing fields and schools and H/PE teachers. Following Hay and Penney (2013) and Penney (2020), we use Bernstein's concepts

of classification and framing to consider how knowledge relations are being shaped, reproduced, and may potentially be transformed, through PL assessment structures and discourses.

Classification, framing and physical literacy assessment

Bernstein (1971, 1990) posited the principles of classification and framing as central pillars for a critical examination of knowledge and pedagogical relationships, and their social significance. In directing attention to relationships, Bernstein was simultaneously concerned with boundaries and the degree of insulation inherent in firstly knowledge structures (in the case of classification) and in knowledge communication (in the case of framing).

Drawing on classification, we are prompted to consider how various knowledge, skills and understandings are structured in PL assessment and what knowledge (and learning) connections and distinctions are inherent in, and communicated by, various PL assessment tools. Bernstein (1971) associated strong classification with a 'collection' type of curriculum that prompts learners to engage with various contents insulated from each other, and weak classification with an 'integrated' type, where relations between/across contents are brought to the fore. We see categorisation and insulation of contents therefore important issues to explore in PL assessment.

With framing, our focus is on pedagogical relations and boundaries embedded in, communicated by and able to legitimately be promoted from PL assessment tools. Framing brings to the fore the 'the range of options available to teacher and taught in the *control* of what is transmitted and received in the context of the pedagogic relationship' (Bernstein, 1971, p. 50, original emphasis), particularly in terms of the *selection, organisation and pacing* (Bernstein, 1990). With strong framing, options and flexibility are limited and with weak framing, they are expanded. Framing directs attention to the extent that distinct knowledge and social hierarchies, sequencing and pacing rules, and criteria for 'legitimate and illegitimate communication, social relation, or position' are explicit or implicit in pedagogic relations (Bernstein, 1990, p. 66). Following Hay and Penney (2013) we thus recognise the importance of assessment pedagogies and, in this study, have sought to investigate whether PL assessment texts are currently promoting tight control or openness for teachers and students. Secondly, in considering framing, we note Bernstein's (1971) prompt to also examine the boundary relationship between educational knowledge and 'non-school everyday community knowledge' (p. 50). This aspect of framing is pertinent in considering the extent to which the PL skills, knowledge and understandings incorporated and privileged in assessment texts, relate to those at the fore of PL in students' lives beyond schools and was therefore also incorporated in our inquiry.

We see PL assessment discourse as critical in driving more integrated types (Bernstein, 1971) of H/PE curriculum than currently exist in some places, and that emphasise learning connections and transfer, or more collection types (Bernstein, 1971), that distinguish between and variously privilege particular skills, knowledge and understanding. Further, we highlight the implications for inclusivity and equity in H/PE. As Penney (2020) noted, 'the maintenance of particular boundaries, through the message systems of curriculum, pedagogy and assessment, is inherently tied to power relations in education and society' and to 'the positioning of certain knowledge as only accessible to (or appropriate for) particular students' (p. 116). How PL is represented in and by assessment thus has

implications for both what and whose learning H/PE values and PL assessment (tools, resources, practices) are recognised as neither neutral nor without social consequence.

This study takes an initial step in engaging with these important issues for the field. We acknowledge the small range of assessment texts analysed in the research as a limitation as it relates to curriculum and pedagogy in PL, and remain necessarily cautious in our commentary. We also emphasise that Bernstein's work is expansive and complex (Moore, 2011). We have necessarily been selective in the tools utilised here and we make no claims about a complete analysis. The following section explores how we sourced, coded and interpreted papers for this research.

Methods

Here, we draw on an extensive and systematic literature review that was carried out in 2019 to identify the discourses surrounding PL assessment and the tools arising from it. Following the preferred reporting items for systematic reviews and meta-analyses (PRISMA) checklist (Moher, Liberati, Tetzlaff, & Altman, 2009), five electronic databases were searched (ProQuest, ERIC, Science Direct, Scopus and Sport Discus), using the search term 'physical literacy'. Additional sources not identified through the databases were recruited by manually searching reference lists. To maximise the opportunity for gaining a broad perspective of how PL is understood, expressed and enacted the criteria for inclusion were: (i) published in English; (ii) published between 1993 and 2019; (iii) peer-reviewed literature available in full-text format; (iv) PL is included in the title and/ or abstract; (v) a definition of PL is provided; (vi) PL is a primary focus of the literature; and (vii) literature is from the disciplines of physical education, sport or public health (see Figure 1 for exclusion criteria). Following this process resulted in 103 literature sources. To have enough depth to analyse assessment, an additional inclusion criteria was added. That being the word 'assessment' needed to appear at least fifteen times, which narrowed the data sample to thirty-one literature sources. This number was arbitrarily determined to ensure that assessment of PL was the significant focus within the literature we reviewed. A further five literature sources were subsequently discarded during the coding phase as they did not discuss a specific PL assessment tool (Figure 1). We acknowledge here that our requirement for the word 'assessment' to be present in the literature source placed an additional boundary around this research, thus limiting capacity to explore assessment to the full extent of what it might be. The literature sampling size represented, at the time, about 30% of the total literature focusing on PL, supporting the credibility of the findings and rigour of the study design.

Data extraction and analysis

The initial stage of analysis involved a close reading of the twenty-six literature sources at least twice, as a familiarisation process. Thereafter began the coding phase whereby the literature sources were re-read, and data were extracted and categorised according to their role in assessment and the strength of classification and framing (more detail below). Papers were coded as 'formation' if they were presenting or developing an assessment tool, 'supportive' if they were advocating or explaining the tools application, 'neutral' where it was descriptive without advocacy, or 'critical' where there were questions or
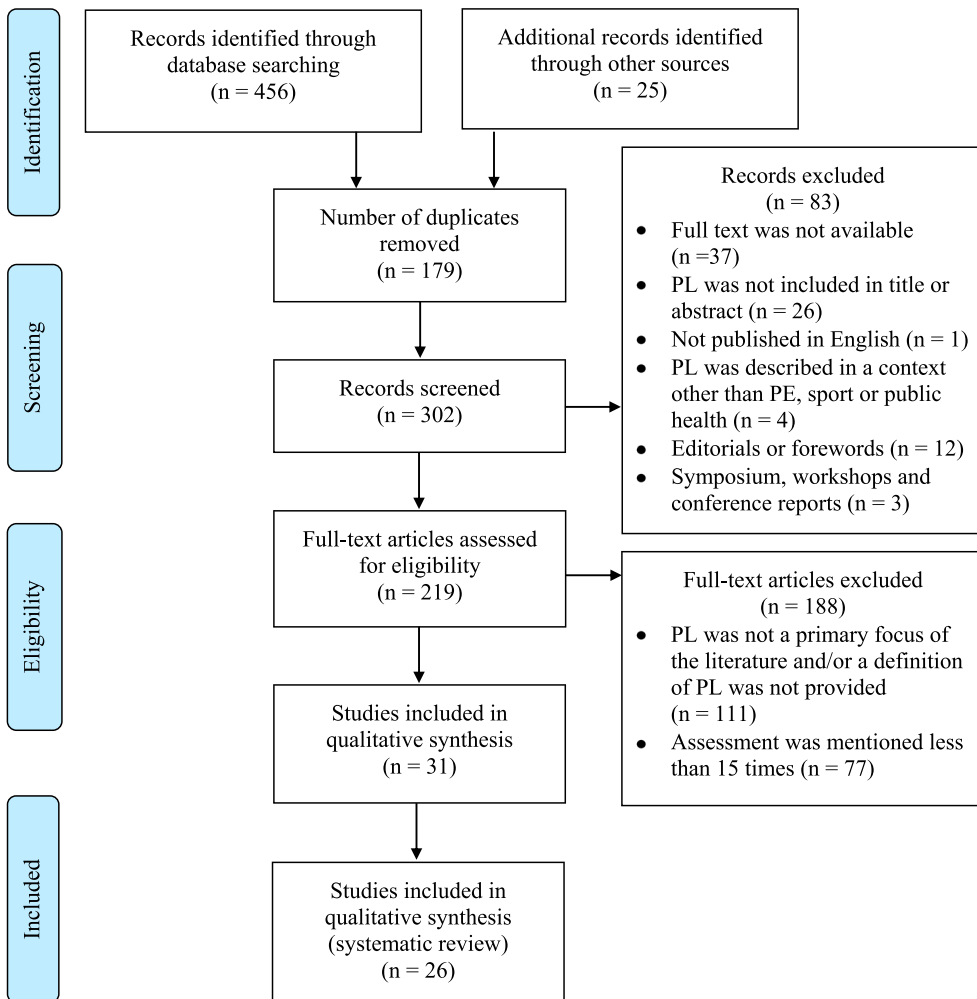
Figure 1. PRISMA flow diagram showing the process of literature identification and inclusion.

challenges about the tool being raised (see Table 2). Drawing on the wider range of literature beyond just tool formation, meant we were better able to capture the wider *recontextualizing field*.

Classification refers to the degree of insulation between categories, that is, the strength of the silence between what is, what could be and what isn't assessed in PL. Assessment was coded strong in classification where clear distinctions were made between what is assessed in the name of PL and all other possibilities (Bernstein, 2000). *Framing* refers to principles of communication between transmitters and acquirers and unpacks the form of control. Framing was coded as strong for assessment, where the assessor was expected to regulate and control the interactions and communicative context. These include when, where and how assessment was to happen, the criteria used, the appropriateness of the 'position, posture and dress of the communicants, together with the arrangement of the physical location' (Bernstein, 2003, p. 34). Where we could find them, we coded for more specific aspects of framing evidenced in the assessment texts, including

Table 1. Applying coding for Classification and Framing.

Strong Classification and Strong Framing	Strong Classification and Weak Framing	Weak Classification and Strong Framing	Weak Classification and Weak Framing
Insulation between domains and other content/subject areas. Performance achievement criteria for pre-selected tasks linked to narrow conceptions of movement. Assessment task and process tightly controlled. Little variation/ negotiation. Selected and completed by the teacher on the student. Formal equipment, explicit criteria, appropriate dress. School-based learning 'bounded' for the purpose of assessment.	Insulation between domains and other content/subject areas. Performance achievement criteria for pre-selected tasks linked to narrow conceptions of movement. Student negotiation of when assessment happens across a time period, self-assessment and peer-assessment included. Negotiated equipment, criteria, dress. Can connect school-community learning.	Assessment spanning and connecting multiple domains (tactical, social, technical, emotional, embodied) associated with a diverse set of movement/interpersonal skills. Assessment task and process tightly controlled. Little variation/ negotiation. Selected and completed by the teacher on the student. Formal equipment, explicit criteria, appropriate dress. School-based learning 'bounded' for the purpose of assessment.	Assessment spanning and connecting multiple domains (tactical, social, technical, emotional, embodied) associated with a diverse set of movement/interpersonal skills. Student negotiation of when assessment happens across a time period, self-assessment and peer-assessment included. Negotiated equipment, criteria, dress. Can connect school-community learning.

assessment hierarchies (i.e. one domain over another), sequencing (i.e. achievement stages, ages, levels) and criteria specified for comparative judgements. Table 1 provides an illustration of the application of coding criteria used to conduct the analysis.

NVivo 12 was used to organise the data, with the intent being not to apply Bernstein's (1971, 1990, 2000) concepts with rigid precision, but rather capture and summarise the essence of what was being presented in textual form. We come to this process with particular lenses and biases. The main themes that emerged from the data were regularly and thoroughly discussed amongst the four authors to limit any bias. To help with validity and reliability of both the analysis and findings, an independent coding comparison query was run in NVivo 12 with the second author to measure inter-rater reliability. The comparison revealed excellent agreement, receiving a Kappa score of 0.78 (QSR International, 2019).

Findings

We reviewed twenty-six papers with a significant focus on assessment in PL. From the twenty-six papers analysed, six PL assessment tools were identified. These sat outside of official H/PE texts and documents. Table 2 outlines the extent to which papers were coded as formation, supportive, neutral or critical in their relation to these six assessment tools. Despite each assessment aligning in some way to Whiteheads conceptualisations of PL, we found quite different strengths of classification and framing associated with the assessment tools analysed. We coded three of the assessment tools in PL as having strong classification and framing. One was coded with moderate classification and framing and two were coded as having weak classification and framing.

Strong classification and framing

Our coding identified three assessments as having strong classification and framing, these were the Canadian Assessment of Physical Literacy (CAPL), Passport for Life (PFL), and

Table 2. Systematic Review of Physical Literacy Assessment Tools.

Assessment Tool, Field (PRF, ORF)	Article categorisation[a]	Author, year, country	Assessment context	Assessment characteristics	Summary of Findings: Classification, Framing & Aspects of Framing (hierarchy, sequence and criteria)
Canadian Assessment of Physical Literacy (CAPL), PRF	Formation papers	1. Longmuir and Colleagues (2015), Canada; 2. Longmuir and Colleagues (2018a), Canada; 3. Gunnell and Colleagues (2018a), Canada; 4. Longmuir and Colleagues (2018b), Canada; 5. Gunnell and Colleagues (2018b), Canada; 6. Francis and Colleagues (2016), Canada;	Community, Recreation, Sport, School	Four assessment domains: 1. Daily Behaviour (pedometer, physical activity self-report) 2. Motivation and Confidence (12-item scale) 3. Physical Competence (PACER, plank hold, timed skill assessment) 4. Knowledge and Understanding (definitions from HRF)	**Strong Classification:** Distinction from other subject areas. Insulation or independence between PL domains, boundaries around chronological age (8–12 years), closed or fixed end point (i.e. achieving PL). Motor performance on sport related skills, CV endurance and attitudes towards sport participation a focus. **Strong framing:** Administrators control the selection, sequence and pace of assessment through a battery of standardised assessment protocols. Set criteria of 'Beginning', 'Progressing', 'Achieving', or 'Excelling' scored out of 100. Some domains contain self-report items suggesting weaker framing. Progress can be monitored. **Aspects of Framing:** Hierarchy of objective over subjective and sport over recreation. Highly sequenced with stages of progress and achievement standards to be met in relation to age and sex. Clear performance criteria set for all 4 domains with a focus towards graded specialisation.
	Supportive papers	7. Tremblay and Lloyd (2010), Canada; 8. Tremblay and Colleagues (2018a), Canada; 9. Pohl and Colleagues (2018), Canada; 10. Belanger and Colleagues (2018), Canada; 11. Saunders and Colleagues (2018),			

Table 2. Continued.

Assessment Tool, Field (PRF, ORF)	Article categorisation[a]	Author, year, country	Assessment context	Assessment characteristics	Summary of Findings: Classification, Framing & Aspects of Framing (hierarchy, sequence and criteria)
	Neutral papers	Canada, 12. Nystrom and Colleagues (2018a), Canada; 13. Nystrom and Colleagues (2018b), Canada; 14. Whitehead (2019), UK; 15. Edwards and Colleagues (2017), UK, Australia; 16. Green et al. (2018), UK, Canada, Australia; 17. Miller and Colleagues (2018), Canada; 18. Lundvall (2015), Sweden; 19. Tremblay and Colleagues (2018b), Canada;			
	Critical papers	20. Robinson and Randall (2017), Canada; 21 Corbin (2016), USA.			
Passport for Life (PFL), PRF	Formation papers	22. Mandigo and Colleagues (2019), Canada;	School	Four assessment domains: 1. Movement Skill test 2. Fitness tests 3. Living Skills (21-item questionnaire) 4. Active Participation (21-item questionnaire)	Strong classification: Distinction from other subject areas. Insulation or independence between PL domains, boundaries around chronological age linked to grade (Grade K-12). Select set of movement and fitness skills. Closed or fixed end-point (i.e. acquired). Strong framing: Teacher controls the selection, sequence and pace of assessment in domains 1 and 2 via a battery of standardised assessment protocols done twice per year. Assessment doesn't bridge to different contexts. Participants are given a rating of 1 (emerging), 2 (developing), 3 (acquired), or 4 (accomplished). Domains 3 and 4 are self-assessed

					weakening framing but the items are fixed. Passport data can be used to set individual PL journey goals. Aspects of Framing: Hierarchy of objective physical measures over other PL domains. Highly sequenced with stages of progress and achievement standards to be met in relation to age. Clear performance criteria set for domains 1, 2 and 3 leading to graded specialisation.
	Supportive papers Neutral papers	23. Lodewyk and Mandigo (2017), Canada; Whitehead (2019), UK; Green et al. (2018), UK, Canada, Australia; Miller and Colleagues (2018), Canada; Lundvall (2015), Sweden; Tremblay and Colleagues (2018b), Canada;			
	Critical papers	Robinson and Randall (2017), Canada.			
Physical Literacy Assessment for Youth (PLAY), PRF	Supportive papers	24. Kriellaars and Colleagues (2019), Canada, Brazil, Australia;	Sport, Recreation, Community, School	Three assessment domains: 1. Motor competence; 2. Comprehension; 3. Confidence of 18 movement skills. Four aspects of movement are assessed: (1) Locomotor; (2) Transport; (3) Upper and Lower body object control; (4) Balance and body control. PLAY*self* has four domains: (1) environment; (2) PL self-description; (3) ranking of literacies; (4) fitness.	Moderate classification: Some potential to integrate across discipline areas. Insulation or independence between PL domains. A wide range of motor skills assessed weakening boundaries around the types of activity. In self ratings, boundaries are created around sports (86 mentions) and other forms of PA such as walking (0 mentions) (i.e. in outdoors almost all activity examples were sport related). In the Inventory – a wide range of movements are included. Age is loosely defined as 7 plus. There are boundaries placed around achievement with a fixed end point (i.e. perfect PL). Weaker classification around the PLAY*self* where domains are

Table 2. Continued.

Assessment Tool, Field (PRF, ORF)	Article categorisation[a]	Author, year, country	Assessment context	Assessment characteristics	Summary of Findings: Classification, Framing & Aspects of Framing (hierarchy, sequence and criteria)
					integrated. Strong framing: Administrators control the selection, sequence and pace of assessment through standardised assessment protocols found in the PLAY workbook. 4-point scales are used and scored out of 100 and participants classified as 'Developing' (which includes 'Initial' and 'Emerging') or Acquired (which includes 'Competent' and 'Proficient'). Similar labelling frames for comprehension and confidence. Some domains contain self-report items suggesting weaker framing. PLAY*parent* and PLAY*coach* are used by parents and coaches to provide their perspective on the participant. Participants are judged on a scale from 'not physically literate' to 'perfect PL'. PLAY*self* is a self-evaluation tool weakening framing, but participants have little control about the pacing, timing or response types. Using 2–5 point scales participants rate and track their own PL against 22 questions. Aspects of Framing: Hierarchy of physical competence over other domains like the affective and cognitive domains which are weakly assessed. Highly sequenced with stages of progress and achievement standards to be met regardless of age. There is a clear performance criteria set with graded specialization.
	Neutral papers	Whitehead (2019), UK; Green et al. (2018), UK, Canada, Australia; Miller and Colleagues (2018), Canada; Tremblay and Colleagues (2018b), Canada;			

	Critical papers	Robinson and Randall (2017), Canada; Corbin (2016), USA.			
IPLA Physical Literacy Matrix, PRF	Formation papers	Whitehead (2019), UK.	Community, School, Sport	Four assessment domains: 1. Motivation; 2. Confidence; 3. Physical Competence; 4. Knowledge and Understanding	Weak classification: Some potential to integrate across discipline areas. The 4 domains within PL are integrated to create a holistic picture of the participant. Not bounded by any age and designed for charting an individual's lifelong PL journey. Applicable to all individuals in any physical activity setting. PL is not a state to attain and then maintain. Weak framing: Self-evaluation tool completed by the participant. 60 descriptors applicable to multiple contexts. Participants select the 12 best-fit descriptors, that represent how they perceive themselves at the time of completing the matrix. Five categories of descriptors: 'unaware of or dismissing potential'; 'exploring potential'; 'developing potential'; 'consolidating potential'; 'maximising potential' can move fluidly across these boundaries. Used to chart and celebrate individual progress. Focused on individuals to take responsibility for their own PL journey, not about external agency tracking or related to alternate objectives (i.e. obesity prevention). Aspects of Framing: Non-hierarchical. The 4 domains are given equal status. Highly likely that every individual journey will see movement to the right and the left of the matrix. Shared competence.
Conceptual Model of Observed Physical Literacy, PRF	Formation papers	25. Dudley (2015), Australia.	School, Curriculum, Community, Sport, Recreation	Four assessment domains: 1. Movement Competencies; 2. Rules, Tactics, and Strategies of Movement;	Weak classification: The 4 domains are integrated. The focus is on the relationship and learning that exists among the elements. Weak framing: Focus is beyond school. Applicable to any physical

Table 2. Continued.

Assessment Tool, Field (PRF, ORF)	Article categorisation[a]	Author, year, country	Assessment context	Assessment characteristics	Summary of Findings: Classification, Framing & Aspects of Framing (hierarchy, sequence and criteria)
				3. Motivation and Behavioural Skills of Movement; 4. Personal and Social Attributes of Movement	activity setting. Student-centred approach. Participants plot their own achievements, strengths and weaknesses in their own manifestations of PL. Used to determine the progress participants make based on varied starting points in any given physical learning context over time. Individualised learning, participants' progression and understanding may manifest in several roles and physical activity experiences. Learning continuum that represents a loose progression from simple to complex in the physical, cognitive, and affective learning domains. Participants are capable of being at different points within each domain simultaneously. Used to inform teaching of PL in a developmentally appropriate and sufficiently challenging way. Aspects of Framing: Non-hierarchical. The 4 domains are given equal status. Progression is not necessarily in a strict linear fashion. Criteria can be modified. Shared competence.
SHAPE America National Physical Education Standards, PRF	Supportive papers	26. Gu et al. (2019), USA;	School	Five assessment domains: 1. Motor skills and Movement patterns; 2. Movement and Performance Knowledge; 3. Physical Activity and Fitness Knowledge and Skills; 4. Personal and Social Behaviour; 5. Value Physical Activity	Strong classification: Distinction from other subject areas. Insulation or independence between PL domains, boundaries around chronological age by Grade level. Grade level outcomes for each standard with a fixed end-point (i.e. competent). Strong framing: Focus is within the school context. Teacher controls the selection, sequence and pace of assessment through a battery of standardised assessment protocols to test the meeting of national PE standards and grade-level outcomes. PE metrics combine with a narrow set of motor skill assessments for domain 1; PE metrics written assessment for domains 2, 3, 4 and 5; FitnessGram

		and Actial activity monitors for domain 3. Formative and summative assessment.
		Aspects of Framing:
		Hierarchy of physicality privileged over other domains. Highly sequenced with stages of progress and achievement standards to be met in relation to age. Clear performance criteria set all domains.
Neutral papers	Whitehead (2019), UK; Green et al. (2018), UK, Canada, Australia;	
Critical papers	Corbin (2016), USA.	

SHAPE America's National PE Standards. The extent of the discussion within the PRF focused on these assessments was significant, with twenty-five of the papers reaffirming and reproducing the distinctions inherent within these assessments. Texts espousing these assessments reinforced the idea that decision making for what is assessed when, should remain tightly and externally controlled by others.

Coding revealed that across these three assessments a rather narrow set of physical measures related to fitness and motor performance were prioritised. PFL assesses two physical domains – movement skills (i.e. running, kicking, and throwing and catching) and fitness skills (i.e. four-station circuit, lateral bound or hexagon jump, and plank) (Mandigo, Lodewyk, & Tredway, 2019). CAPL awards 60 of their 100 points to physicality through assessment of physical activity participation, sport related skills and cardiovascular endurance (Longmuir et al., 2018). SHAPE America employs PE Metrics to assess patterns of motor performance and the FitnessGram to assess health-related fitness (Gu, Chen, & Zhang, 2019).

Strong classification was also demonstrated through insulation between assessment domains. To illustrate, the CAPL allows each of its four domains to be independently assessed, where test administrators can:

> choose to complete the entire CAPL-2 assessment to provide a comprehensive picture of the child's physical literacy, [or] they can also choose one or more domains, or select individual protocols, if the desire is to examine a particular facet of physical literacy (Longmuir et al., 2018, p. 178).

Similarly, results from the PFL assessment 'are separated into categories (fitness skills, movement skills, active participation, living skills), allowing the teacher to easily see areas where students may be in need of further instruction' (Robinson & Randall, 2017, p. 47). In these three assessments, stronger boundaries were also placed around achievement age (predominantly ranging from Grades K-12) where being 'physically literate' was clearly 'achievable' as an end goal. Evidenced by SHAPE America's National PE Standards when they substituted the term 'physically educated' for 'physically literate' in each of their five Standards (Robinson & Randall, 2017).

These three assessments were largely teacher led and highly sequenced in their construction with stages of progress and achievement standards. The CAPL and PFL each label participants' PL against descriptors (See Table 1) and allow for comparison between learners. SHAPE America employs grade-level outcomes (arising from each Standard) which participants are evaluated against. At this level the teacher (or administrator) is also responsible for the timing, sequence and pace of assessment, with fixed items signalling a standardisation across individuals for learning about and attaining PL. The implication is, that PL develops uniformly along some sort of maturational continuum. The PFL for example, is administered biannually (at the beginning and end of each school year) (Robinson & Randall, 2017). In both this and the CAPL, learners are asked to demonstrate PL competence through performance in a fixed set of assessment protocols (i.e. the PACER shuttle run, a plank hold and the Canadian Agility and Movement Skill Assessment) (Longmuir et al., 2018). Where possible, standardised and objective data are prioritised, signalling comparison can readily be made across learners.

Moderate classification and framing

One assessment tool outlined in seven of the coded papers was the Physical Literacy Assessment for Youth (PLAY). This demonstrated weaker boundaries associated with classification and framing (predominantly the PLAY*self* tool), where different activities in different contexts across seasons are considered (i.e. outdoors, indoors, in and on water, on snow and ice and in the air). Despite this, PLAY still labelled participants against performance descriptors and much of the decision making lay with the test administrator. PLAY also insulated boundaries around the physical domain of PL. If participants were able to select from the 18 movements included in the PLAY*fun* tool, it would go some way to weakening both classification and framing. PLAY's self-evaluation tools, PLAY*inventory* (which encompasses a wide range of activities and movements for participants to tick off) and PLAY*self* (used to assess self-efficacy, competence, and activity environments) also push PLAY towards weaker classification and framing. However, from our coding, it appears as though these PLAY tools get hidden to some extent in the hierarchy of what is officially tested and in what this signals as important.

Weak classification and framing

Only two papers focused on assessments that were deemed to express weak classification and framing, the IPLAs Matrix (Whitehead, 2019) and Dudley's (2015) Conceptual Model of Observed PL. These assessments were not bounded by context or underpinned by particular discourses of cardiovascular fitness or a narrow set of games-based skill performances. Assessments demonstrated an interdependence across domains of PL further weakening classification. For example, Dudley (2015) noted:

> The four elements are entwined together into a reasoned compendium. They do not exist as separate resources to sit on a teacher's desk or to be selected according to a particular focus the teacher believes should be taken (p. 239).

Both assessments demonstrated weak classification by aligning with the holistic nature of physical activity where the 'emotional, spiritual, and intellectual self' (p. 242) were a concern (Dudley, 2015). In both cases PL was not a state to be attained or reached. Whitehead (2019) pointed out that in the assessment tool proposed by the IPLA, 'all three domains are taken into consideration and given equal status in the gathering of data on an individual's journey. No one domain is privileged over another' (p. 75). Both Dudley and the IPLAs assessments were positioned as forming part of 'a journey that a school and its wider community can service' weakening boundaries and consequently expanding possibilities for action (Dudley, 2015, p. 238).

Dudley's (2015) adoption of Bunker and Thorpe's (1982) hierarchical use of rules, tactics and game strategies linked to team games and sports, potentially strengthens boundaries around what physical activities are signalled as important for assessment. Dudley was, however, careful to highlight this limitation and pushed to extend his assessment tool to reach beyond conventional team games and sports. Dudley also questioned the use of traditional notions of fundamental motor skills (FMS) within a PL frame as limiting possibilities for movement. His attempt to expand notions of what FMS are important, and thereby express weaker classification in PL assessment, was noted in the coding.

Whitehead (2019) pointed out that the 'acquisition of techniques … should only constitute a small part of any charting process' (p. 75).

Weak framing was also noted in regard to the positioning of students as able to negotiate and control the selection, sequence and pace of assessment of PL. Whitehead's (2019) IPLA assessment tool aligns with phenomenological roots, and argues that 'all changes identified in respect of an individual should be judged against the previous behaviours of that person. Comparison with others is not relevant' (p. 75). Dudley (2015) suggests that his assessment begins with:

> the motivation and interests of students, attempting to connect students with their learning through their own interests and thus through the inherent meaning attributed by the student to the tasks and content involved (p. 239).

Both Whitehead (2019, pp. 79–82) and Dudley's (2015, pp. 252–253) use of 'I can', 'I seek' etc. language in the assessment signals more fluid boundaries and wider possibilities. For example, Dudley's assessment (2015) suggests students are free to create 'new adaptations' for skills and apply these in different contexts. Both position the assessment as a form of mapping exercise where students plot achievements, strengths, and weaknesses in relation to their own goals for PL. Whitehead (2019) clearly specifies the individual's role in the assessment, this is guided and supported by significant others as part of reflective conversation. Both approaches represent a much weaker framing in comparison to other assessments, where trained practitioners executed a battery of assessment tools. In both of these examples, the criteria remained general enough so the focus is 'internal to the acquirer (cognitive, linguistic, affective, motivational)' creating a space where the acquirer can write their own story, rather than being compared to an external common standard (Bernstein, 2003, p. 71).

Discussion

The academic literature we reviewed discussed PL assessments that were coded predominantly as having strong classification and framing. As indicated above, both classification and framing are fundamentally concerned with relationships and, consequently, structures, boundaries and inherent knowledge hierarchies. Our focus on assessment tools for PL provides insight into how they prospectively mediate and legitimate relationships that are fundamental to H/PE (Penney, 2020). The extent to which the tools reviewed in literature illustrate strong classification and framing, points towards an enactment of PL that both tightens and narrows learning and the modes and means of demonstrating this. Who is (and can be) deemed physically literate, is signalled and limited by assessments that prioritise particular physical proficiencies over more holistic and relational conceptualisations. In particular, the standardisation and normalisation of tests and their products narrow opportunities for individual difference and growth to be showcased and enhance the potential for comparison. PL assessments also represent a statement about how, and in what movement contexts PL can be legitimately demonstrated in H/PE. In these respects, those tools with strong classification and framing may limit pedagogic possibilities.

Strong classification, as noted by Bernstein (2000), is likely to lead to a dislocation in the transmission of knowledge. In this case, the insulation of motor skill learning, or the

capacity to hold a plank, can lead to a dis-location of it from the context of lifelong participation. Assessment tools like the CAPL, might claim a strong alignment with the IPLA's definition of PL, yet through assessment it signals 'solutions' to the problems it uncovers by placing boundaries around possibilities. For example, in the CAPL assessment manual (2017, p. 45), students receiving lower scores on motor competence are asked to 'have more fun and be healthier by practicing the skills involved in the physical tests like: running, jumping, catching, throwing, pushing up, and holding the plank', signalling a narrow set of possibilities for curriculum and pedagogy. Mapping the child against performance descriptors places emphasis on the external product of the child and acts to highlight differences between children (Bernstein, 2000). The 'cultural relay' of this pedagogic practice is that the teacher/assessor is highly visible, the criteria clear and the acquirer is learning what is (i.e. plank, throw, dodge) and is not (i.e. cycling, walking to school) legitimate in PL.

We also found other assessments with weaker classification and framing that embraced relations across a wide range of domains, enabling a wider range of assessment possibilities for teachers and students. PL assessments, like those proposed by the IPLA and Dudley, span a range of discourses and consequently open themselves up to more diffuse power structures. They have potential to accommodate a greater scope for difference and therefore who is (or can be) deemed as physically literate. 'Weak classification establishes an alternative power base', where lines of power are more complex and dispersed providing a new social basis for consensus making that considers oppositional perspectives' (Bernstein, 2000, p. 11). Furthermore, while tools associated with strong classification and framing are likely to be directed towards grading and comparisons, those associated with weaker classification and framing are more likely to enable a focus on and valuing of, individualised acquisition and competences (Bernstein, 1990). As revealed in our review of PL and assessment, tools developed by Dudley and the IPLA are yet to gain traction within the wider literature, though we acknowledge that the IPLA assessment tool was only launched in 2019. Whilst not without challenges, these tools are prospectively important in expanding visions and opportunities for the integration of PL in H/PE in ways that align with more holistic and inclusive visions for curriculum, pedagogy and assessment.

Which version/s of PL settle to become, at least temporarily, a PL that is recognised alongside or within H/PE, will be largely shaped by the power structures at play. The PL assessment tools bounded by physical proficiencies, such as sport-related and hierarchically developed motor skills, cardiovascular fitness and tactical awareness, expose these as the constructs taken to represent PL and that give it authenticity and integrity (Bernstein, 2000). In many ways, this strong classification and framing can be seen to reaffirm existing boundaries in the field, and thus speak to 'status quo' rather than transformation. A discourse of maintenance is evident in the PFL where Lodewyk and Mandigo (2017), outline how it was 'designed to align with vital psychomotor health-related physical activity participation and fitness, affective, and cognitive learning outcomes embedded in PE curricula across Canada' (p. 460). Our reading of the PL assessment literature suggests that at this point in time, a more strongly framed and classified version of PL is exerting itself to good effect.

Bernstein (2000) highlights that the defences of those with vested interests to maintain the status quo are not always 'wholly effective and the possibility of the other, the unthinkable, the yet to be voiced, is also rarely silenced' (p. 7). Edwards et al. (2017) called for a

weakening of boundaries to build relations beyond the 'constructs of physical proficiencies' with an 'aim to measure/assess physical literacy from a more holistic perspective' (p. 679). The assessments presented by Dudley, the IPLA and to a lesser extent the PLAY tools, leave the door ajar for an alternative discourse for PL and ultimately/potentially H/PE. With these assessments weak in classification and framing, PL might indeed represent a significant enough perturbation for H/PE to let new ideas enter, characterised by different power balances.

We acknowledge weak classification and framing offer 'no pedagogic utopias' (Bernstein, 2003, p. 9) and recognise that any assessment can be poorly interpreted and enacted. Weakly classified and framed assessments create ambiguity making them difficult to read and control (Bernstein, 2000, 2003). Consequently, they depend on strong communication (Bernstein, 2003). They also may not fit well within the performative/comparative context of schooling in which many teachers operate. Yet given assessment has consequences for those children able to exploit its possibilities (Bernstein, 2003), we feel PL assessments weak enough in classification and framing can open up, rather than close down opportunities for all students and help them be recognised for doing so.

Concluding thoughts

How PL eventually integrates alongside or within the curriculum, pedagogies and assessments of H/PE class-spaces, will ultimately shape which particular discourses are privileged and marginalised. This research foregrounded PL assessment as critical in this process and for H/PE 'futures'. It has drawn attention to the wider influence and significance of assessment tools that can often be viewed as 'neutral'. Following Hay and Penney (2013), our emphasis is that they are anything but that, but rather represent and communicate values and as such are mechanisms of/for inclusion/exclusion, status quo/transformation in teaching and learning in H/PE.

In outlining how assessment is currently positioned in PL by agents in the PRF, we highlight the need for policy makers and educational agents to consider what tools and resources are or might be taken up, endorsed or developed in the name of PL and by extension, H/PE. Those with weaker classification and frame can be difficult to grasp, uncertain and open ended. Yet, if the intention is to develop ways of assessing PL that align with original conceptions of PL, then a weakening of both the classification and framing is necessary and we feel in line with others (Edwards et al., 2017; Lundvall, 2015; Robinson & Randall, 2017), inherently important.

If/how PL gets operationalised in H/PE, the types of tools, resources or specifications linked to PL assessment that are encountered by teachers will have important implications for learners and learning. How these get presented to educational agents (teachers, parents, students – as either strong or weak classification) and ultimately how these educational agents select, transmit, recontextualise and evaluate them (McCuaig & Hay, 2014), will be a reflection of 'the power relations on which the classification is based and which it reproduces' (Bernstein, 2000, p. 7). PL and its assessment could have a role to play in opening up the domains considered important for lifelong and lifewide participation, across schooling and community, individually tailored to accommodate student

ownership and voice. Alternatively, it can strengthen new and existing boundaries and place limitations on possibilities.

Note

1. Sport Australia's Australian Physical Literacy Framework has been designed to be utilised by numerous stakeholders, this includes schools and educators. In their position statement it is specified that PL 'can be achieved through quality physical education' (Sport Australia, 2019b). The release of the Australian Physical Literacy Framework is thus likely to begin to infiltrate and influence H/PE within Australia. Despite this, the framework has been developed independently of the Australian Curriculum for Health and Physical Education and no formal relationship currently exists between Sport Australia and the Australian Curriculum, Assessment and Reporting Authority.

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