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ARTICLE

# Assessing Physical Literacy in Health and Physical Education Through Biographical Mapping

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***Background:*** Assessment plays an integral role in shaping how physical literacy (PL) is understood and enacted within Health and Physical Education (H/PE). Traditional assessments that are too linear, narrow, or focused on fixed ends can limit students' exploration of PL. ***Purpose:*** This paper proposes a biographical mapping approach for PL (BMAP-PL), offering a conceptual and methodological approach for assessing PL that extends beyond particular physical movements and skill competencies. ***Approach:*** BMAP-PL in H/PE involves a five-step process, including mapping significant movement-related events, evaluating PL over time, and integrating reflective goal setting and assessment. This process conceptualizes PL as a dynamic, nonlinear, and individualized journey with no fixed end state. ***Significance:*** Through capturing the biographical situatedness of a student's PL journey, BMAP-PL highlights how individualized experiences, coupled with knowledge and skill acquisition, can contribute to the ongoing development of PL, offering a meaningful and flexible assessment approach for PL in H/PE.

***Keywords:*** assessment, nonlinear, physical activity, holistic, biographies, learning

With physical literacy (PL) increasingly becoming part of Health and Physical Education (H/PE) discourse internationally (e.g., Government of British Columbia, 2019; New South Wales Government, 2015; Society of Health and Physical Educators [SHAPE] America, 2024; Welsh Government, 2019), the way it is assessed has become an important consideration. Assessment of PL is fundamental in shaping how it is understood and enacted, and ultimately in determining "who is (and can be) deemed physically literate" (Young, et al., 2021, p. 172). Given that PL is widely considered to be an individual and lifelong journey (e.g., International Physical Literacy Association, 2017; Sport Australia, 2019; Sport England, 2023), it is crucial to have an assessment approach for PL in H/PE that caters for individual differences over time rather than an approach tied to end state norms.

This conceptual and methodological paper proposes a biographical mapping approach for PL (BMAP-PL), inspired by Thiel et al.'s (2011) "biographical mapping method" and the International Physical Literacy Association's "PL matrix" (Whitehead, 2019), to provide a personal, ongoing, and nonlinear approach to "charting" students' PL journeys within secondary school H/PE (students of adolescent age). BMAP-PL involves the charting of an individual's PL journey over selected time periods to capture the biographical situatedness of their PL. The goal is to gain evidence and insights around what works for progressing opportunities for improving PL, sustaining existing PL, or slowing any inevitable regression. Ultimately, allowing for a more personalized, nonlinear, and meaningful assessment for PL in H/PE.

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Existing literature and commentary on the assessment of PL is now shared, followed by an exploration of the biographical mapping method that underpins this paper. The proposed BMAP-PL approach for assessing PL in H/PE is then introduced.

## PL and Assessment

Assessment forms one of the key interrelated message systems of schooling together with curriculum and pedagogy (Bernstein, 1990). This makes assessment "arguably one of the most influential facets of contemporary education" (Hay & Penney, 2013, p. 1), signaling to H/PE students what skills, knowledge, and understandings are valued, placing particular boundaries around the field of possibilities. PL as an expansive concept is continually at risk of being heavily bound by what gets assessed in its name. These boundaries are further complicated by discrepancies in how PL is defined and understood across diverse educational contexts (Young et al., 2023).

While there are a multitude of PL conceptualizations, Whitehead (2010, 2019) and the International Physical Literacy Association's (2017) "phenomenological embodiment" version of PL (see Table 1 for an adapted overview) has been argued as the most suitable for H/PE (Young et al., 2023). This conceptualization denotes that PL sits across different domains of learning (psychomotor, cognitive, and affective), enabling students to "explore their movements, to nurture a greater connection between their embodiment and the physical world, and to reflect upon and understand the experiences of movement" (Jurbala, 2015, p. 370). According to UNESCO, a Quality Physical Education curriculum promotes development across the full range of learning domains (UNESCO, 2015) making this PL conceptualization a good fit for H/PE.

Despite its benefits, the philosophical complexities of this phenomenological embodiment version of PL are frequently ignored across the landscape of PL assessment tools (Young et al., 2023). Instead, PL commonly gets positioned as an end

**Table 1 Overview of Physical Literacy**

| | |
|---|---|
| Definition: "Physical literacy can be described as the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life" (Whitehead, 2019, p. 8). | |
| Physical literacy attributes: Individuals who are making progress on their unique physical literacy journey will demonstrate the following: | |
| Motivation (affective domain) | They are motivated to regularly take part in physical activity (before, during, and/or after school). |
| | They sustain physical activity engagement and are motivated to apply themself (independently or with others). |
| | They are motivated to include physical activity in their lifestyle. |
| Confidence (affective domain) | They are confident to engage in physical activity (overall confidence). |
| | They are perceptive of their own ability and believe that progress can be made (perceived competence—growth mindset). |
| | They have confidence when interacting and engaging with a range of physical activity environments (social, built, and natural). |
| Physical competence (physical domain) | They perceive themselves as moving proficiently and effectively in different physical activities (technical). |
| | They have an (embodied) awareness of movement needs and strategies in different physical activities (tactical). |
| | They are able to meet the physical demands of different physical activities (fitness). |
| Knowledge and understanding (cognitive domain) | They know how to return to, sustain, or improve performance in different physical activities. |
| | They understand the complexity of the relationship between physical activity and well-being. |
| | They have the knowledge to plan and effect a physically active lifestyle. |
| | They understand how to form and sustain social relations that can support and enhance physical activity experiences. |

*Note.* Adapted from Whitehead, 2019.

state or outcome whereby students who are assessed against a set of normative standards can be deemed physically literate once these standards are met (Green et al., 2018; Young et al., 2021). This stands in contrast to the idea that PL comprises a unique lifelong journey that varies according to an individual's social ecology (e.g., Whitehead, 2010, 2019). When assessment tools frame narrow pedagogic possibilities in H/PE, they tend to feed into the perpetuation of a narrow set of expectations tied to fitness, specific sporting skills, and gendered performative discourses within certain activities (Aasland et al., 2020).

For over two decades, Whitehead (2001, 2010, 2019) has proposed the "charting" of an individual's PL journey rather than "assessing" their progress toward a particular standard. This is because Whitehead presents PL as a holistic concept that focuses on everyone's unique embodied experiences. To conceptually align with Whitehead's notion of PL, it is almost impossible to standardize, normalize, and compare one individual's PL journey directly to another (Green et al., 2018). Whitehead (2019, p. 74) has also stressed that PL is not a state to be "attained and then maintained thereafter," meaning PL has no standardizable benchmark of attainment and indeed fluctuates quite readily at the individual level, including quite often regressing with age, injury, changing priorities or increased/decreased motives. Therefore, it is inappropriate to assess (or question) if an individual is "physically literate." For Whitehead (2010, 2019), PL is dynamic, nonlinear, and lifelong, for which conventional linear assessments with fixed end states of achievement are ill-suited (Green et al., 2018).

A range of PL assessment tools have been developed to assess the PL of children (e.g., Cairney et al., 2018), adolescents (e.g., Sum et al., 2018), and adults (e.g., Holler et al., 2023). Some of these assessment tools have been specifically designed for or have infiltrated H/PE (e.g., Canadian Assessment of Physical Literacy, Passport for Life, and Physical Literacy Assessment for Youth). While these assessment tools predominantly leverage and endorse Whitehead's and the International Physical Literacy Association's definition of PL (e.g., Longmuir et al., 2015; Mandigo et al., 2019), they have what Young et al. (2021) deemed "strong" classification and framing (Bernstein, 1971). Assessment tools strong in classification and framing are often underpinned by highly sequenced achievement standards that at a superficial level readily allow comparison between students. For example, SHAPE America (2013) adopted PL as the goal of their K–12 "National Standards and Grade-Level Outcomes" rendering PL a linear process with fixed grade-level benchmarks. These assessments lend themselves to cross-sectional comparison as opposed to capturing growth in knowledge, skills, or understandings that have the potential to encompass a diverse range of physical activities at an individual level. Through the prioritization of a narrow set of proficiencies in tightly conceived contexts (i.e., particular fundamental skills or fitness components tied to competitive sport), and the creation of assessment hierarchies (e.g., prioritizing physicality), particular domains of PL are also privileged. This form of ranking also places strong boundaries around who is and can be deemed "physically literate" (Young et al., 2021). Encouragingly, SHAPE America's (2024) National Physical Education Standards represent a shift away from strong classification and framing by reframing PL as an ongoing journey rather than a fixed outcome. Their inclusion of Grade-Span Learning Indicators and Learning Progressions reflects a more dynamic and individualized approach to PL. Despite this, SHAPE America still assesses students against measurable outcomes where much of the decision making lies with the teacher.

Unlike assessment tools characterized by "strong" classification and framing, those with "weaker" classification and framing,

such as the International Physical Literacy Association's PL matrix (Whitehead, 2019), do not overtly present PL as an end state to be attained, nor do they privilege any one domain of PL over another (Young et al., 2021). Within the PL matrix, for example, the individual is responsible for mapping their own PL progress (Whitehead, 2019). The PL matrix thus offers a wider scope for capturing diverse learning journeys and comprises a more transgressive and therefore inclusive approach for understanding and evidencing PL.

Despite apparent strengths and conceptual alignment with a phenomenological embodiment version of PL, the International Physical Literacy Association's PL matrix appears to have gained relatively little traction within H/PE. This may be because the self-report nature of this assessment tool can be difficult to grasp due to its open-endedness coupled with an overriding desire for standardized grading and comparison between students (Young et al., 2021). Drawing inspiration from the philosophical underpinnings of Whitehead's (2001, 2010) phenomenological embodiment version of PL as a nonlinear lifelong journey that is unique to the individual (Whitehead, 2010, 2019), we turned to biographical mapping, as a potential tool that may serve to bridge the highly individualized and self-reported nature of the International Physical Literacy Association's PL matrix and the desire for more scalable tools that can map outcomes over time.

## The Biographical Mapping Method

Biographical mapping stems from the field of sports sociology and was initially applied to understand the influence of major life events on athletes' health and well-being (Thiel et al., 2011). It involves systematic documentation, visualization, and analysis of an individual's lived experiences, to complement any demographic or surface-level data, by delving into the nonlinear and multidimensional nature of personal narratives (Schubring et al., 2019; Thiel et al., 2011).

More specifically, Thiel et al.'s (2011) biographical mapping method spans a two-dimensional mapping grid,[1] whereby the *x*-axis represents a chronological timeline and the *y*-axis a rating scale ranging from 0 at the lower end to 10 at the upper end. On the *x*-axis, the athlete maps their lifespan by pinpointing personal life events (e.g., school entrance, club change, injury, squad promotion) that have influenced their health and career. After this initial orientation task, the athlete charts the course of selected dimensions (e.g., performance development, state of health, relevance of health, relevance of nutrition) across their career. A subjective scaling approach on the *y*-axis (0–10) is used to help the individual orient and compare their own data over time so that changes identified for any individual are judged against the previous behaviors of that person. An important step in evidencing the process is the athlete's reflection on the course of each dimension individually and in relation to each other, using the biographical mapping method as a prompt tool. In doing so, personal insights are gained through assessing factors that have shaped their health and careers, which arguably increases the ownership and agency athletes have toward their health and well-being (Schubring et al., 2019; Thiel et al., 2011).

While the origins of biographical mapping lie in sports research, the applicability of biographical mapping can extend beyond the athletic domain to biographical research in general (Schubring et al., 2019), particularly in secondary school H/PE. This method, although initially developed for use with athletes, has the potential to elicit deeper and more authentic understandings of how life events impact H/PE students' identities and behaviors, often influenced by structural conditions and social norms (Schubring et al., 2019; Thiel et al., 2011). The complexity of transferring biographical mapping from sport to H/PE, however, requires pedagogical adaptation to extend its application from a one-on-one interview format to a classroom environment.

Thiel et al.'s (2011) biographical mapping method offers a distinct and promising approach to the assessment of PL in H/PE that aligns closely with the principles of good assessment, particularly focused on personalized and lifelong learning (Hay & Penney, 2013). Unlike standardized assessment protocols or performance evaluations, biographical mapping delves deeply into an individual's personal experiences, perceptions, and contextual factors influencing their engagement in physical activity (Thiel et al., 2011), making it particularly relevant for secondary school H/PE students. Adolescence, a crucial phase of identity formation and social influences plays a significant role in shaping students' relationships with physical activity (Hamilton & White, 2008). During these formative years, reflective processes like biographical mapping can arguably help students make sense of their PL journey by capturing personal narratives and trajectories that not only assess perceptions of skills and ability, but also help uncover underlying motivations, challenges, and barriers to physical activity participation. This approach offers H/PE teachers a more comprehensive understanding of students' holistic development across domains of PL (affective, physical, and cognitive), making biographical mapping a highly relevant and meaningful form of assessment for secondary school students.

Moreover, the reflective nature of biographical mapping can facilitate the setting of growth-oriented goals tailored to where an individual currently locates themselves and enables ongoing monitoring and assessment of progress toward these goals. Student achievement is established within the biographical evidence provided against progress toward particular goals. This personalized approach to PL assessment has the potential to foster equity by equipping H/PE teachers with actionable insights to recognize and adapt their teaching practices to address the diverse needs, interests, and lived experiences of their students thereby enhancing the effectiveness and inclusivity of H/PE.

## Overview of the BMAP-PL

Building on the work of Carl et al. (2024), which introduced BMAP-PL in the contexts of physical activity and health, this paper extends its application, focusing on Whitehead's (2001, 2010) "phenomenological embodiment" version of PL (Young et al., 2021) and the International Physical Literacy Association's PL matrix (Whitehead, 2019) to offer a pedagogical framing of BMAP-PL, tailored specifically to the context of H/PE. The extended conceptual and methodological application of BMAP-PL presented in this paper focuses on capturing an individual student's evidence of personal progress in relation to PL while illuminating understandings of how factors impact PL. There are no comparisons with others, or age/stage-specific standards to be assessed against (Green et al., 2018), but rather students map achievements, strengths, and weaknesses in relation to their own current state of PL and personal PL goals. This positions the BMAP-PL as individualistic and ipsative. Where assessment is constrained by the need for grading, H/PE teachers should consider notions of growth or progress (as a consequence of effort/practice/learning) relative to the individual student's goals (*x*-axis) and the quality of understanding presented in the narrative evidence used to substantiate particular ratings (*y*-axis).

As an adapted version of Thiel et al.'s (2011) biographical mapping method, the BMAP-PL is characterized by a combination of semistructured narratives and mapping activities to explore an individual's unique PL journey (Carl et al., 2024). Specifically, BMAP-PL follows four steps: (1) introduction and overview, (2) mapping of significant movement-related events (*x*-axis), (3) biographical anchored evaluation of PL over time (through lines, separate for different attributes), and (4) taking a "deeper dive." However, for use in the context of H/PE, we have added a fifth step: (5) goal setting and assessment. This additional step is grounded in the principles of Meaningful Physical Education (MPE), emphasizing personal relevance and reflective learning (Fletcher et al., 2021). By incorporating goal setting and assessment, this step encourages students to set personalized PL goals, monitor their progress, and reflect on their growth, fostering deeper and more meaningful engagement in H/PE.

Importantly, while research suggests that children as young as 10 can exhibit autobiographical memory and self-concept skills needed for complex assessments (Kangaslampi, 2024; Vagni et al., 2024), the youngest population with which Thiel et al.'s (2011) biographical mapping method has been successfully employed is youth aged 14–18 (Schubring et al., 2019). Accordingly, we recommend BMAP-PL be employed specifically within secondary school H/PE contexts, where it is most developmentally appropriate. In the following sections, we outline each of the five steps for application of BMAP-PL within H/PE.

### *Introduction and Overview*

Acting as a collaborative co-producer, the H/PE teacher should strive for a calm, safe, and encouraging environment (Durden-Myers et al., 2018; Harding, 2006). The H/PE teacher should explain in easy and age-friendly words to the students that the intention of the BMAP-PL is to explore their individual PL journeys. More explicitly, students are asked to reflect on (a) where they have been on their PL journey, (b) where they are now in relation to the PL attributes, and (c) where they want to go (this time frame is flexible). Where they want to go will be important in establishing the assessment of growth and learning (further discussed in the "goal setting and assessment" step).

Keeping the holistic nature of PL (Whitehead, 2001, 2010) in mind, equal weight and focus should be given to the affective (i.e., motivation and confidence), physical (i.e., physical competence), and cognitive (i.e., knowledge and understanding) domains during the gathering of data related to an individual's PL journey. If one domain is privileged over others (e.g., physical) or one is ignored, the intended procedure runs the risk of narrowing PL and a coherent picture of an individual's PL journey will not be captured (Whitehead, 2019).

To emphasize the "never-ending" nature of PL (Whitehead, 2010), the duration of the BMAP-PL should not be fixed to a single point, but rather be completed over the course of a school term or a 6- or 12-month period, always with consideration for how this is situated as part of H/PE schooling and as a much larger PL journey beyond school. In line with Durdren-Myers et al.'s (2018) principle of "devolving responsibility" to nurture PL, H/PE teachers and students can work together to identify appropriate time scales. If completed on a regular ongoing basis, students' PL biographical mappings can form the basis of a portfolio of H/PE participation over the duration of their schooling years. This aligns with existing literature which advocates for forms of PL assessment that provide a longitudinal picture of an individual's PL journey (e.g., Goss et al., 2022; Hogan et al., 2023) to inform ongoing learning.

As part of the overview of this approach, H/PE teachers make it clear how students will be involved in decision-making processes regarding the activities, goals, and assessment methods. This involvement forms a central feature of a MPE approach (Fletcher et al., 2021). Linking H/PE to students' real-world experiences and contexts is crucial for making the subject matter meaningful and relevant (Fletcher et al., 2021). MPE authors advocate for assessments like portfolios, as these provide the space for students to identify the nature and extent of the meaning they are making in H/PE while helping them make sense of the impact of experience (Fletcher et al., 2021; Ní Chróinín et al., 2018).

### *Mapping of Significant Movement-Related Events*

To begin the biographical mapping process, the H/PE teacher provides a scaffolded approach to documenting significant movement-related events that have influenced their PL journey and will ultimately end up on the mapping grid (Figure 1). As part of this process, the H/PE teacher should invite students to personalize their biographical map in a way that expresses their unique movement identities. For example, some students may choose to highlight movement-related events associated with a PL identity (netball/tennis player, dancer, and H/PE student), while others may choose to focus on movement events aligned to a particular activity (e.g., soccer, riding to school, lunchtime games), a "significant other" (Whitehead, 2010; e.g., parent, carer, coach, teacher, etc.), or a thing of meaning to their lives (e.g., pets, horses, nature) that impacts their movement identities. This serves to establish the uniqueness of their PL journey (Whitehead, 2010, 2019), links to their real-world experience (Fletcher et al., 2021), and thus diminishes any perception of standardization, comparison, and ranking.

To assist students in completing this task, the H/PE teacher can provide a brainstorming or mind-mapping approach that, through a series of prompts, encourages students to identify significant events that impact their association with movement (see Figure 2). Prompts should serve as a scaffolded model and cover a wide range of potential movement-related events. As a form of authentic assessment (Hay & Penney, 2013), students use the prompts to identify personal movement-related events (e.g., started playing soccer, got a new bike for Christmas, rode a horse for the first time, broke an arm, changed teacher or school) that they regard as important in relation to their movement identities or as part of a broader movement culture (Engström et al., 2017). Recognizing that identifying a personal starting point may be challenging for some students, the teacher can guide the process by having all students begin with a shared movement-related event, such as their first Bike Education lesson. This provides students with a common and accessible starting point for the mapping process. From this foundation, students can then branch out to reflect on and document more individualized movement-related events that are meaningful to their own PL journey.

As previously stated, the mapping grid represents a premade matrix (Schubring et al., 2019). The *x*-axis represents the individual life course or a deliberately selected period of time within that life course. The significant movement-related events should be entered at the corresponding time points on the *x*-axis of the mapping grid to serve as orientation points. In Figure 3, for example, the student has reflected on significant movement-related events, such as started walking to school, which is recorded as written text along the *x*-axis.

The *y*-axis represents a subjective rating scale ranging from 0 to 10. It is important to note that movement journeys are intimately tied to a principle of uncertainty. This means quantitative data,

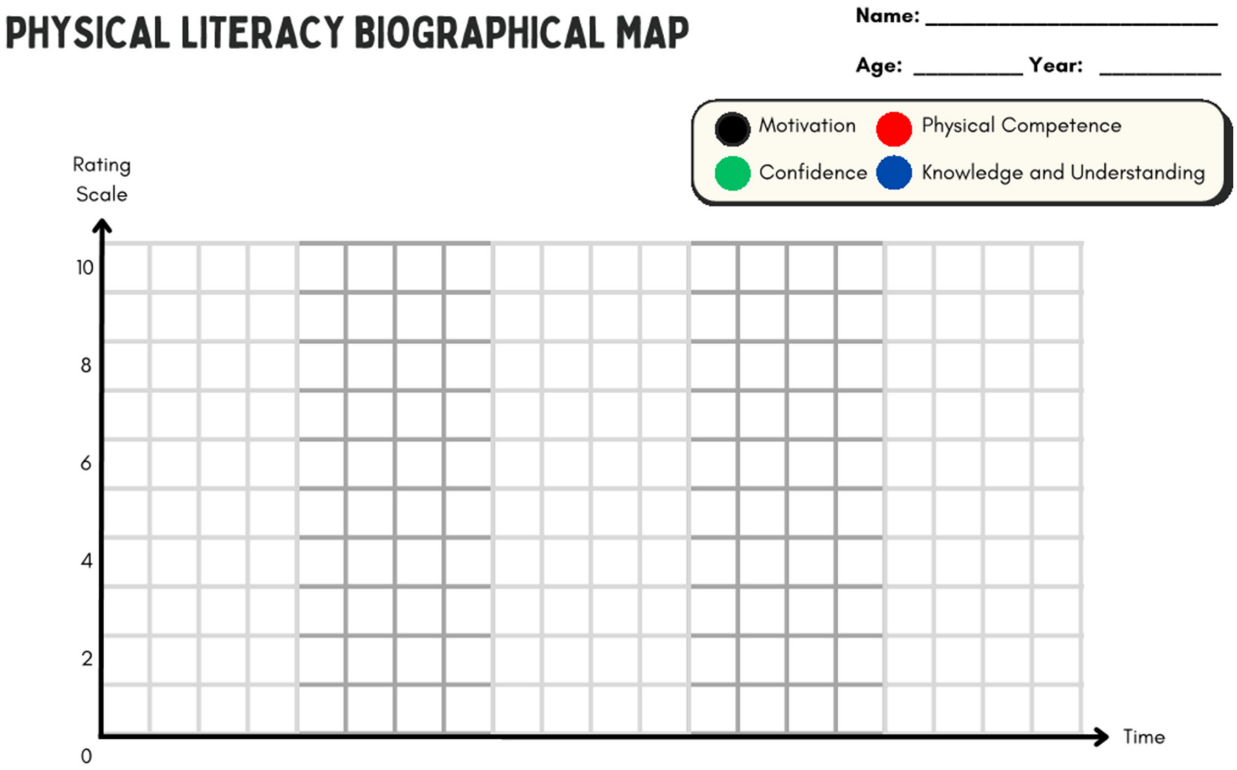


**Figure 1** — Sample physical literacy biographical mapping grid.

derived from individual trajectories must be primarily interpreted rather than just measured in the strict sense of the word (Engström et al., 2017). In this case, each student's PL journey will be different; therefore, BMAP-PL data are intended for self-interpretation and reflection, not for standardization or comparison with others.

Beginning from the very left (where the *x*-axis and *y*-axis overlap), time is represented chronologically based on age (e.g., Age 10–14) or a select number of school years (e.g., Years 5–9). For easier orientation, the timeline is segmented into years by alternating light- and dark-shaded horizontal lines. Further, each shaded section is segmented into four sections to represent the four school terms and/or quarters in a year (see Figure 1). The current age (e.g., 12) or school year (e.g., Year 7 in Australia) should be located in the middle of the *x*-axis, with 1–2 years on either side to allow students to reflect on not only where they are now, but also where they have been and where they want to get to in terms of their PL journey. This not only encourages constructive self-reflection and self-evaluation but also empowers students to take responsibility by setting personal and growth-oriented goals (Durden-Myers et al., 2018). The recalling and recording of significant movement-related events helps to reconstruct biographical developments (Thiel et al., 2011).

### *Biographically Anchored Evaluation of PL Over Time*

Once students have marked their significant movement-related events along the *x*-axis, the H/PE teacher provides an overview of the attributes of PL (i.e., motivation, confidence, physical competence, and knowledge and understanding, see Table 1) that the student will use to map the trajectory of their PL journey over time. The H/PE teacher can present this overview verbally or with the support of visual aids, such as images, or a model PL biographical mapping example.

After providing students with an overview of PL and its attributes, the H/PE teacher shifts attention to the *y*-axis as a rating continuum spanning from 0 = avoiding (at the lowest end of the axis) to 10 = maximizing (at the upper end of the axis), with respect to the four PL attributes. Like above, students may choose to focus on a range of movement identities here or hone in on a particular physical activity; alternately, H/PE teachers can play a greater role in directing a focus toward, for example, a learning outcome in the curriculum. H/PE teachers scaffold students through this process by providing a working example and asking questions. For example, in relation to *X* movement-related event/physical activity, at *Y* time my motivation level to participate was *Z* for these reasons. Where H/PE teachers are seeking stronger classification and framing of assessment, they might choose to engage more with a subjective PL rating scale such as the one presented in Table 2. We do not advocate for Table 2 to act as a rubric where increasing grades are assigned as you move from left to right. Rather, it serves as a tool to help subjectively locate where the student is on their PL journey.

Social desirability bias is a type of response bias where respondents answer questions in a manner that they believe will be viewed favorably by others (Klesges et al., 2004). Students may be tempted to mark themselves high on all ratings, so it is important they understand there is no right or wrong response here and that any grading is not linked to the scores they attribute to themselves. Importantly, if students feel they have room for improvement, they need to leave space for it. This self-assessment strategy arguably empowers students to be actively engaged in their own assessment, promoting ownership of their learning journey and facilitating the development of self-efficacy and self-regulation skills (Panadero et al., 2017).

To visually depict these subjective evaluations, solid dots are plotted along the *x*-axis corresponding to each chronological point,

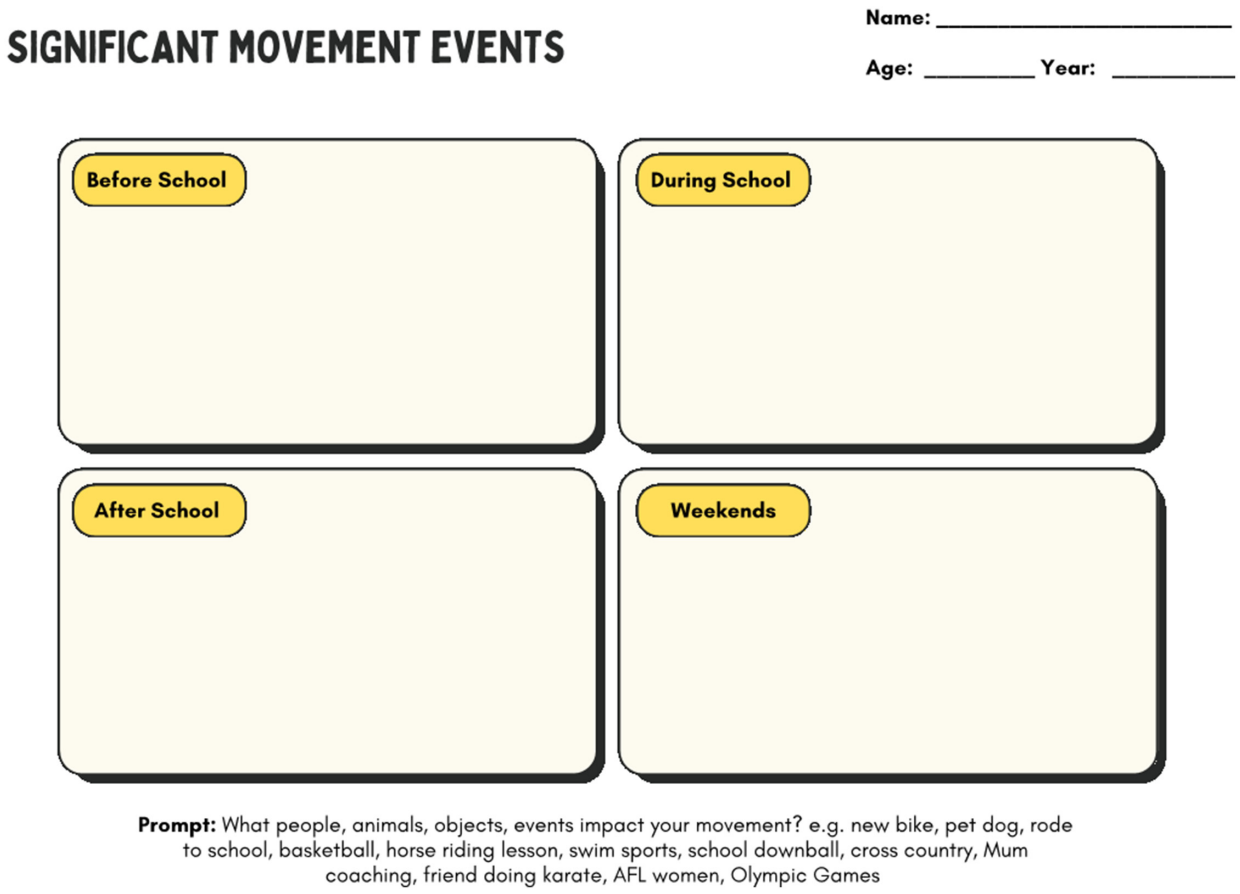


**Figure 2** — Sample prompt sheet to scaffold significant movement-related events.

reflecting the students' subjective ratings along the *y*-axis, while considering significant movement-related events. Once students have plotted their solid dots, they connect them for each of the four PL attributes from the start of the chronological timeline until the current point in time (see the example shown in Figure 3). Each of the PL attributes should be depicted in a different color. In Figure 3, for instance, the student considers on how the movement-related event of changing school has caused a drop in motivation. This is depicted by a noticeable dip in the motivation curve.

### *Taking a "Deeper Dive"*

Supporting Whitehead's (2019) recommendation that "information gathered concerning a physical literacy journey should include reflections on involvement in physical activity" (p. 75), H/PE students use this opportunity to consider how the key moments in their biographies have shaped their PL. Each line, individually and in combination, tells a story and students are encouraged to produce a narrative for these lines and give insight into its features. The qualitative narrative together with artifacts as "evidence" for their PL journey presents a key element as to what is being assessed. H/PE portfolios, workbooks, or journals can provide a strong source for assessment data (Hogan et al., 2023; López-Pastor et al., 2013). Combined, the narrative and artifacts should provide comprehensive evidence of their PL journey thus far (Whitehead, 2019) and create space for students to reflect on and make sense of the impact of their experiences (Fletcher et al., 2021). Importantly, comparisons with others are not the focus, rather changes identified with respect to a student's PL journey are considered against their own prior behaviors and experiences (Whitehead, 2010, 2019).

When engaging in this reflective process, students should pay particular attention to sudden leaps in the curve, peak or bottom points, intensive change, or an event-related inability to draw a line for a certain life period (e.g., "I cannot remember"). Based on Figure 3, for example, the student might reflect on how changing school resulted in a drop in motivation, as their new school is further away from home, preventing them from walking to school —a movement-related event that has previously contributed to an increase in their motivation. Given that individualized support may be challenging in large class contexts, H/PE teachers can use general prompts to scaffold students' reflections on key moments in their PL journey (e.g., "What was specific event, person, or experience led to this increase in confidence?" or "What circumstances led to this decline in your motivation?"). To further support H/PE teachers, a sample list of prompts has been provided as a Supplementary Material (available online). These prompts are adaptable for use in various class sizes and contexts, ensuring that BMAP-PL remains feasible even in large H/PE classes.

### *Goal Setting and Assessment*

To this point, H/PE students have been asked to reflect on and identify where they have been and where they are now in relation to their PL journey. From here, the task transitions into where to next in terms of their PL journey (in a selected period of time, e.g., in the

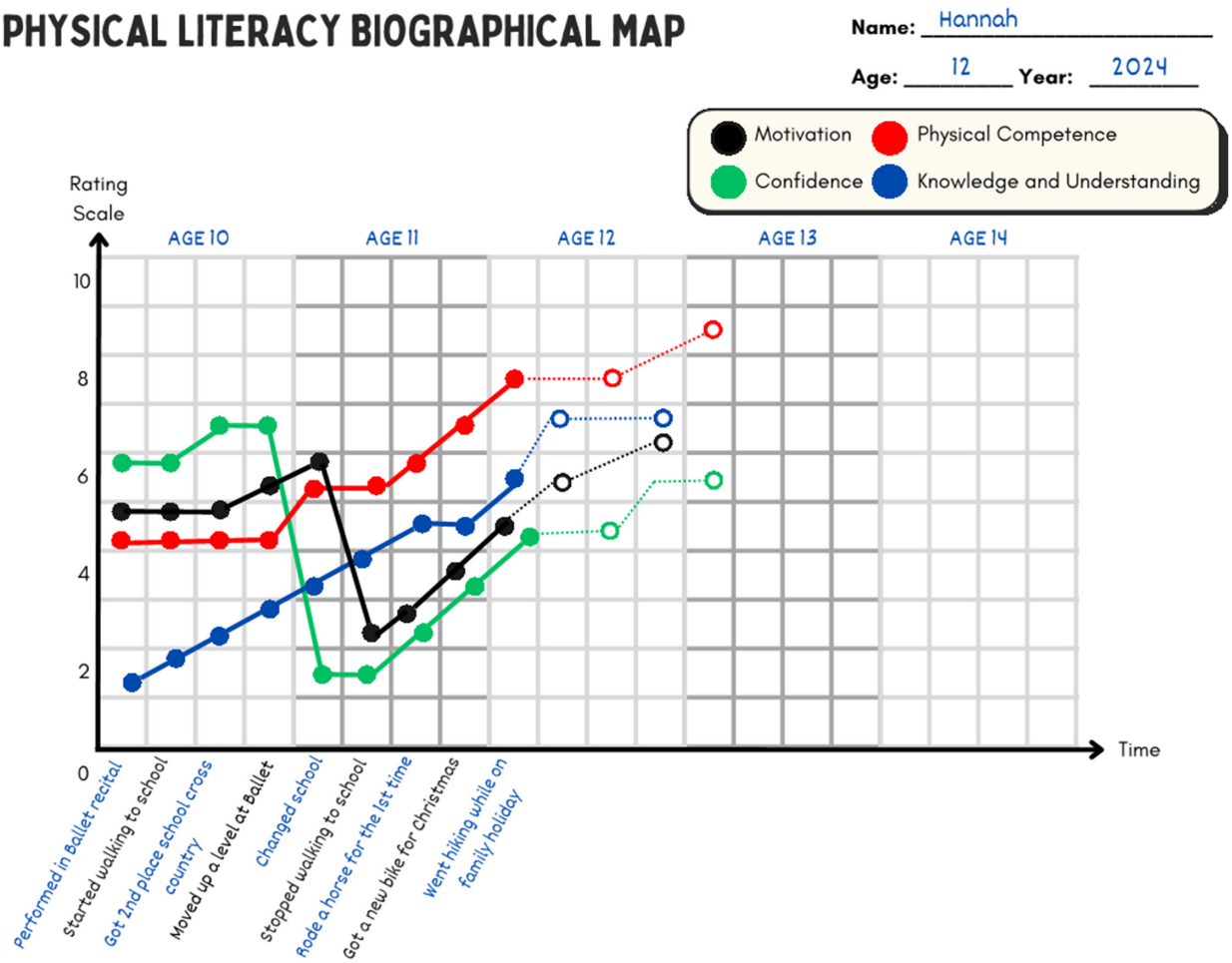


**Figure 3** — Exemplary physical literacy biographical map depicting significant movement-related events, self-evaluation of four physical literacy attributes, and anticipated/desired physical literacy trajectory (hypothetical example of a 12-year-old student).

next one or two school terms, the next 1 or 2 years). Young et al. (2021) suggested assessment of PL that positioned students as being able to have some negotiation and control over the selection, sequence, and pace of assessment was more likely aligned with the intentions of Whitehead's conceptualization of PL. Further, Dudley (2015) suggested that assessment begins with the motivation and interests of students and attempts to connect those students with their learning based on their interests in ways that allow greater meaning to be attributed by the student to the tasks and content involved. These authors underscore the pivotal role of student involvement in assessment processes, emphasizing the alignment of assessments with personalized learning goals and the significance of connecting assessments to student motivation and interests.

Having generated their PL narratives, the students, with support from their H/PE teacher, anchor their current PL status for later comparison and establish goals and targets that can help form the basis of ongoing assessment. Alfrey and O'Connor (2024) found that providing students with the opportunity to choose a focus for their assessment contributed positively to transforming an H/PE program. We therefore suggest a mix of teacher-identified learning goals (assessable) and negotiated student-directed learning goals that align with the PL attributes and official curricula. Students start by clearly mapping their current attributes in relation to objectives to establish a baseline and set targets for achievement by plotting them on their biographical map (continuing along the *x*-axis, see the example shown in Figure 3 represented by the dashes and open dots). To help students set goals, the H/PE teacher may ask provocative questions (e.g., What specific physical skill or ability do you want to improve, and how will you work toward achieving it?). Based on the example provided in Figure 3, one of the student's goals might focus on rebuilding their motivation, such as "I will engage in regular physical activity, like riding my bike with friends after school, three times a week." Students' goals should be written down and assessed over time through periodic collection of evidence (e.g., videos of skilled performance, rating scales, drawings, peer reflections, etc.).

The BMAP-PL can be conducted on a printed sheet of paper (at least A3 size) or via digital technology (e.g., e-portfolio). Supplementary Material (available online) represents printable versions of the BMAP-PL mapping grid template, significant movement-related events prompt sheet, example of PL biographical map, reflective questions prompt sheet, and a summary of the five-step process. We suggest students collate their biographical maps, written reflections, and periodic evidence in a PL portfolio. A PL portfolio would facilitate holistic documentation of students' PL journey, integrating goal setting, reflective practices, and student autonomy to foster meaningful learning experiences (Fletcher et al., 2021).

**Table 2 Physical Literacy Subjective Rating Scale**

| Physical literacy attributes[a] | Avoiding 0–2 | Limiting 3–4 | Developing 5–6 | Consolidating 7–8 | Maximizing 9–10 |
|---|---|---|---|---|---|
| Motivation (Think of how you were feeling at the time point selected. Which statement most closely matches your thoughts at that time) | I like to do a lot of things, but I don't do much <physical activity>.[b] I don't have the time, energy, or interest. I don't really want to get involved and make <physical activity> part of my routine, whether I'm alone or with others. I am not that interested in learning about <physical activity>. | I do a little <physical activity> when I can but find it hard to stay motivated. I am interested, but it's difficult to make <physical activity> a priority among other things, whether I'm alone or with others. I might consider learning more about <physical activity>. | I do <physical activity> somewhat regularly, and it is usually part of my routine. I enjoy <physical activity> and am looking for more ways to do it, whether I'm alone or with others. I want to know more about <physical activity>. | I do a lot of <physical activity>, it's part of my regular routine. <Physical activity> is important to me, and I make sure to prioritize it where I can, whether I'm alone or with others. I am excited to know more about <physical activity>. | <Physical activity> is a core part of who I am, and I make it a priority throughout the week. I stay involved, find new ways to do <physical activity> and enjoy it, whether I'm alone or with others. I am always looking for ways to learn more about <physical activity>. |
| Confidence (Think of how you were feeling at the time point selected. Which statement most closely matches your thoughts at that time) | I don't feel confident doing physical activities and often avoid them. I think I would worry about what others might think of me, and I don't think I am ready to try different activities in new environments. | I feel a little confident about doing physical activities but often doubt my abilities. I sometimes avoid physical activities because I'm not sure I can succeed, especially if others are watching. Trying different activities in new environments can make me feel uncertain. | I feel confident doing some physical activities, and I like to give things a try. I believe I can do well most of the time and feel somewhat comfortable participating in different activities and environments. I still worry sometimes about what others might think of me. | I feel quite confident doing most physical activities, and I really like to give things a go. I believe in my abilities and rarely doubt myself, feeling comfortable participating in various activities and environments. I don't worry much about what others think of me. | I always feel confident doing all sorts of physical activities and pushing the limits. I seek new challenges because I believe in my abilities and don't worry about what others might think of me, in any activity or environment. |
| Physical competence (Think of how you were feeling at the time point selected. Which statement most closely matches your thoughts at that time) | I just haven't had many chances to improve my fitness, skills, or understanding of <physical activity>, so it is hard for me to keep up. I have strengths in other areas, but I don't feel very competent when it comes to the demands of different activities and environments. | I'm okay at some physical activities. I know I could be a lot better at my fitness, skills, or understanding of <physical activity>. I can join in on some things, but I need more practice to handle the demands of different activities and environments. | I'm fairly comfortable with physical activities. My fitness, skills, or understanding of <physical activity> is good in some areas and just okay in others. I can tackle the demands of different activities in different environments, but there is still room for me to get better. | I'm quite good at different physical activities. My fitness, skills, or understanding of <physical activity> are quite good, and I can adapt well to different environments. I can handle the demands of different activities and environments effectively. | I'm very good at physical activities. My fitness, skills, and understanding of <physical activity> are strong, and I like to challenge myself in different activities and environments. I can apply techniques and tactics across different activities, and I can meet and even exceed the challenging demands of different activities and environments. |
| Knowledge and understanding (Think of how you were feeling at the time point selected. Which statement most closely matches your thoughts at that time) | I know many things, but not much about <physical activity>. I am not sure how to set goals for improving my physical activity or how physical activity affects my overall well-being. I don't know much about planning to stay active or how to support physical activity with others. | I understand a little about <physical activity>, but I find it hard to assess my abilities and set goals for improvement. I have a limited understanding of how physical activity affects my well-being or how to plan for and maintain an active lifestyle. I know a bit about how I can work with others to support physical activity. | I understand some things about <physical activity>, and I can assess many of my abilities and set clear goals for improvement. I understand how physical activity affects my well-being and to some extent, know how to plan for and maintain an active lifestyle. I know how to work with others to support physical activity. | I have a good understanding of <physical activity>, not just my movement abilities, but also things around me that affect my physical activity. I can set realistic goals for improvement. I really understand how physical activity affects my well-being and can plan for and maintain an active lifestyle. I know how to create positive physical activity experiences with and for others. | I have an excellent understanding of <physical activity>, and many different factors that affect movement. I have a deep understanding of how physical activity affects well-being and can adapt goals and plans for different people to help them stay active. I know how to create supportive settings that help a range of people enjoy physical activity. |

[a]The statements outlined in this table are adapted from the International Physical Literacy Association's PL matrix (Whitehead, 2019). [b]<physical activity> can be replaced with a specific physical activity or understood more broadly to accommodate diverse movement identities among students.

## Discussion

This paper presents BMAP-PL as a personal, ongoing, and nonlinear approach to "charting" students' PL journeys within secondary school H/PE. Reminiscent of the International Physical Literacy Association's PL matrix (Whitehead, 2019), BMAP-PL emphasizes self-reflection, individualistic assessment, and the avoidance of rigid standards or comparisons to peers (Young et al., 2021). Like Whitehead (2019), BMAP-PL prioritizes the holistic development of PL (contrary to privileging one domain over the others) and challenges the notion of PL as a fixed end state or set of prescribed proficiencies and opts instead for a more fluid understanding that acknowledges the diverse experiences and trajectories of H/PE students.

Despite commonalities, there are notable differences that distinguish BMAP-PL from Whitehead's (2019) PL assessment tool. Unlike the more open-ended and ambiguous nature of the International Physical Literacy Association's PL matrix (Young et al., 2021), BMAP-PL provides H/PE teachers with a structured method and mapping frame based on Thiel et al.'s (2011) biographical mapping method found in social sciences research. With BMAP-PL, H/PE teachers are guided through a five-step process to explore and unpack an individual student's unique PL journey. This ipsative process provides H/PE teachers with a tangible roadmap for implementation, offering both structure and support throughout the assessment process (Hay & Penney, 2013). By presenting BMAP-PL in this five-step format, it arguably facilitates ease of use and enhances the practical applicability of PL assessment in H/PE, while still enabling a variety of personalized learning outcomes.

BMAP-PL differs in its emphasis on personal narratives and experiences as the basis for assessment in H/PE. By encouraging students to reflect on and map their own PL journeys, BMAP-PL promotes subjective meaning-making and raises awareness of the factors shaping their PL. This focus on personalized learning makes it a valuable form of "assessment for learning" in H/PE. Secondary school students are at a significant stage of identify transformation, as well as physical and cognitive development (Xing et al., 2015). By guiding students through self-reflection on where they have been, where they are now, and where they want to get to in terms of their PL journey, BMAP-PL has the potential to nurture more holistic learning during a time of rapid growth and development (Whitehead, 2019).

From a pedagogical perspective, regularly engaging in self-reflection and periodically documenting experiences and progress regarding PL positions students to develop self-reflective skills that will foster a deeper understanding of their experiences, abilities, preferences, and areas for improvement. This process empowers students to understand the current situatedness of their PL, set personal goals, monitor their progress, and take ownership of their unique PL journeys. Such reflective processes align with international trends in H/PE. For instance, SHAPE America's (2024) recent emphasis on providing students with opportunities to reflect on their movement experiences as part of their PL journey highlighting the value of fostering self-awareness and personal growth in movement contexts.

BMAP-PL further supports these pedagogical objectives by acknowledging the distinct trajectories of each student's PL journey, fostering a spectrum of reflections and responses that enable the "celebration" of the diverse and unique progress of individual students (Jean de Dieu & Zhou, 2021). Unlike prevalent PL assessment tools, which impose strong boundaries around who is and can be deemed "physically literate" through highly structured achievement standards focused on particular skills and fitness capabilities (Young et al., 2021), BMAP-PL is not geared toward correcting deficiencies to increase engagement in normative physical activities (Pushkarenko et al., 2021); rather, it offers a flexible, adaptable PL assessment approach that can be tailored to meet the specific needs and interests of each student. This inclusivity is particularly valuable for students with diverse physical, cognitive, or affective abilities as it facilitates personalized learning and assessment based on the students PL goals. The adaptability of BMAP-PL also enables students' choices in how they evidence their PL journey (Vickerman & DePauw, 2010) and which attributes of PL or aspects their PL journey they focus on, thus moving beyond rigid and standardized assessments. For example, students with specific needs or preferences may choose to map only a subset of PL attributes or aspects of their PL journey they find most relevant, further emphasizing the student-centered nature of BMAP-PL.

The longitudinal nature of BMAP-PL also facilitates ongoing dialogue and feedback between H/PE teachers and their students. Through regularly reviewing students' PL journeys from the perspective of past, present, and future trajectories, H/PE teachers can build a more layered and detailed understanding from which to provide feedback, guidance, and support tailored to students' individual needs. This ongoing engagement with assessment ensures that students receive the necessary assistance to progress effectively along their unique paths of PL development (Green et al., 2018).

In addition to fostering inclusivity and personalized learning, BMAP-PL addresses several of the common challenges of assessing PL in H/PE. Many existing PL assessment tools often struggle to capture the multidimensional and dynamic nature of PL, frequently narrowing their focus to a limited number of PL domains (Jean de Dieu & Zhou, 2021; Young et al., 2021) and framing PL as a destination rather than an ongoing journey (Chen, 2020). Recognizing that only the individual can truly determine their PL development (Chen, 2020), BMAP-PL emphasizes individuality, fostering engagement with the unique and evolving narratives that shape each student's PL journey. This approach to charting PL values individual progress over normative benchmarks, emphasizing personal growth in alignment with the principles of MPE (Fletcher et al., 2021), the notion of "human flourishing" (Durden-Myers et al., 2018), and the spirit of assessment for learning (Tolgfors et al., 2023).

The utilization of BMAP-PL in H/PE, while offering notable benefits, such as openness, flexibility, and student-centeredness, is not devoid of limitations. First, although it serves as both an assessment tool and pedagogical approach, BMAP-PL relies heavily on students' capacity to introspectively reflect on their past significant movement-related experiences and concurrently work with H/PE teachers to self-rate their PL subjectively. This subjective process, while central to the personalized and reflective nature of BMAP-PL, poses a discernible challenge for H/PE teachers who are accustomed to more standardized and objective assessment methods. The absence of objective standards and percentiles that are prevalent in H/PE can make it difficult to interpret and compare data, potentially raising concerns about consistency and reliability (Essiet et al., 2023). Second, BMAP-PL necessitates a calm and safe atmosphere to allow students the necessary time for reflection. If students misunderstand the individualized nature of the task or engage in behaviors, such as distracting peers, or disclosing confidential information the effectiveness and utility of BMAP-PL may be compromised. Finally, we are acutely aware that many H/PE teachers may be concerned about a perceived lack of objectivity, the likely time needed to support the

charting of a PL journey, the process for facilitating the collection and collating of evidence, a loss of class "activity time," and policy requirements for grades and achievement standards (Essiet et al., 2023; Goss et al., 2022; Hogan et al., 2023). More research is thus required in applied educational settings to refine procedures and protocols for this approach. This includes addressing practical implications such as teaching students how to collect meaningful data across domains of PL, the additional time required to scaffold and support the BMAP-PL process, the lack of standardization and its potential to conflict with the formative nature of BMAP-PL by shifting the focus from reflective growth to summative evaluation, and the need for specialized teacher training. Despite these challenges, we argue that this form of PL assessment remains true to what PL represents, and when considered as an authentic and formative process of evaluation, entwined with pedagogy and curriculum, BMAP-PL has the potential to be more than just an assessment tool.

This article serves as both a conceptual foundation and methodological introduction to BMAP-PL in H/PE. While Thiel et al.'s (2011) biographical mapping method has been successfully employed in a range of studies across sports, physical activity, and health contexts, including with young individuals (e.g., Schubring et al., 2019), we invite H/PE teachers and PL enthusiasts to utilize BMAP-PL to investigate the specific use of this assessment approach to "chart" individual students' PL journeys within secondary school H/PE (students of adolescent age).

## Conclusions

The BMAP-PL presents a novel, individualized method that addresses the holistic and lifelong nature of PL. By emphasizing personal narratives and subjective assessments, BMAP-PL transcends traditional linear assessments, allowing for a richer, more nuanced understanding of students' PL development. This paper has outlined both a conceptual approach and the methodological steps for implementing BMAP-PL in secondary school H/PE. The application of BMAP-PL in H/PE not only encourages student self-reflection and ownership of learning but also supports inclusivity by promoting individual growth. Through its five-steps, BMAP-PL provides H/PE teachers with a clear and flexible process to guide students in exploring their PL journey while establishing, monitoring, and assessing personal, growth-oriented goals tailored to their unique PL experiences.

While grounding BMAP-PL pedagogically in H/PE has been crucial, future research will focus on evaluating the effectiveness of BMAP-PL on students' PL development and ensure that it meets the diverse needs of students within the context of H/PE. Additionally, further insight from H/PE teachers regarding the practical implementation of the five-steps will be essential to optimize the impact of BMAP-PL in H/PE.

## Notes

1. Refer to Thiel et al. (2011) for a detailed depiction of their mapping grid.

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