

# Journal Pre-proof

Physical literacy in Europe: The current state of implementation in research, practice, and policy

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3

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5 Physical Literacy in Europe: The Current State of Implementation in Research, Practice, and  
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10

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#### 109 **Declaration of interest**

110 The remaining authors declare that they have no conflicts of interest relevant to the content of this  
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112

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116 **Title:**

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118 Policy

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1 **Title:**

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3 Policy

4

5 **Abstract** (Word Count: 248)

6 **Background/Objective:** The holistic concept of physical literacy (PL) embraces different person-  
7 centered qualities (physical, cognitive, affective/psychological) necessary to lead physically ac-  
8 tive lifestyles. PL has recently gained increasing attention globally and Europe is no exception.  
9 However, scientific endeavors summarizing the current state of PL in Europe are lacking. There-  
10 fore, the goal of this study was to comprehensively assess and compare the implementation of PL  
11 in research, policy, and practice across the continent.

12 **Methods:** We assembled a panel of experts representing 25 European countries. Employing a  
13 complementary mixed-methods design, the experts first prepared reviews about the current state  
14 of PL in their countries (categories: research, practice/policy). The reviews underwent compara-  
15 tive document analysis, ensuring a transnational four-eyes principle. For re-validation purposes,  
16 the representatives completed a quantitative survey with questions reflecting the inductive themes  
17 from the document analysis.

18 **Results:** The document analysis resulted in ten disjunct themes (related to “concept”, “research”,  
19 “practice/policy”, “future/prospect”) and yielded a heterogenous PL situation in Europe. The im-  
20 plementation state was strongly linked to conceptual discussions (e.g., existence of competing  
21 approaches), linguistic issues (e.g., translations), and country-specific traditions. Despite growing  
22 scholarly attention, PL hesitantly permeates practice and policy in most countries. Nevertheless,  
23 the experts largely anticipate increasing popularity of PL for the future.

24 **Conclusion:** Despite the heterogeneous situation across Europe, the analysis has uncovered sim-  
25 ilarities among the countries, such as the presence of established yet not identical concepts. Re-  
26 search should intensify academic activities (conceptual-linguistic elaborations, empirical work)  
27 before PL may gain further access into practical and political spheres in the long term.

28

29 **Keywords:**

30 Active Lifestyle, Competence, Education, Exercise, Health, Physical Activity



31

## 32 **1 Introduction**

### 33 *1.1 The Concept of Physical Literacy*

34 In the past decade, the documentation of the scientific evidence on the high global physical  
35 inactivity prevalence has undergone substantial improvement in both quantity and quality.<sup>1,2</sup> Par-  
36 allel to this, or even stimulated by calls to find solutions against this trend, there have been a  
37 growing number of research articles devoting their interest to the concept of physical literacy  
38 (PL).<sup>3,4</sup> In summary, the academic literature has yielded different PL definitions and conceptual-  
39 izations.<sup>5,6</sup> The number of definitions underlines the diversity of different approaches, but also  
40 accounts for the cultural specificities across the world (e.g., the social element in the Australian  
41 framework or the spiritual element in New Zealand). According to the International Physical Lit-  
42 eracy Association (IPLA), PL can be described “as the motivation, confidence, physical compe-  
43 tence, knowledge and understanding to value and take responsibility for engagement in physical  
44 activities for life” (starting page).<sup>7</sup> When analyzing this widespread definition in more detail, it  
45 becomes apparent that PL cultivates intertwined domains for describing individuals’ proficient  
46 engagement in physical activities: an affective domain (motivation and confidence), a physical  
47 domain (physical competence), a cognitive domain (knowledge and understanding), and lastly a  
48 behavioral domain (daily physical activity behavior).<sup>8,9</sup> In accordance with this multifaceted de-  
49 scription, PL represents a holistic concept that emphasizes the inseparability of body and  
50 mind.<sup>10,11</sup> Moreover, PL has elaborated philosophical underpinnings, encompassing roots in mon-  
51 ism, existentialism, and phenomenology.<sup>11,12</sup> For instance, phenomenological descriptions have  
52 often qualified PL as indicating a lifelong, idiosyncratic journey.<sup>13</sup> PL has stimulated a consider-  
53 able amount of research projects and journal articles, finally culminating in several reviews on  
54 different topics and subjects such as PL conception,<sup>4,6,13-15</sup> measurement,<sup>16-18</sup> health aspects,<sup>19</sup> em-  
55 pirical findings,<sup>20,21</sup> specific target groups<sup>22-24</sup> as well as intervention issues.<sup>3,20</sup>

56 In addition to the increasing popularity of the concept on the scientific level, the value of PL  
57 has also been incrementally acknowledged in practice and policy. For instance, the Global Action  
58 Plan on Physical Activity 2018-2030 (GAPPA) has repeatedly suggested PL as a crucial, prom-  
59 ising concept to address people’s physical inactivity levels.<sup>25</sup> UNESCO gears the Quality Physical  
60 Education (QPE) guidelines for policy makers toward systematically promoting PL in educational

61 contexts.<sup>26</sup> Furthermore, PL has even been suggested as a worthwhile goal for the 2030 Sustain-  
62 able Development Goals by the United Nations.<sup>27</sup> Moreover, on the national scale, several organ-  
63 izations and associations have aligned their practical initiatives with PL. For instance, Canada has  
64 placed PL at the heart of the Sport for Life initiative, thereby creating partnerships between the  
65 sectors of education, recreation, sport, and health.<sup>28</sup> Similarly, SHAPE America acknowledged  
66 the value of the concept and set PL as the standard for students.<sup>29,30</sup> Finally, Sport Australia, sup-  
67 ported by the Australian government, stressed the benefits of PL and has also resulted in a distinct  
68 Australian understanding of the concept.<sup>31,32</sup>

69

## 70 ***1.2 Physical Literacy Across the World***

71 Although the numeric rise in PL endeavors is clear, the recent development on the scientific  
72 and practical/political levels has not permeated to all countries equally. For instance, a recent  
73 review on PL interventions demonstrated that the majority of scientific evidence on PL interven-  
74 tions has been delivered by projects from Australia, Canada, and Great Britain.<sup>3</sup> In contrast, the  
75 review did not register any scientific intervention endeavor from Africa, South and Middle Amer-  
76 ica, or the western countries of France, Japan, Spain, or the United States.<sup>3</sup> In line with this find-  
77 ing, Margaret Whitehead's book *Physical Literacy Across the World* portrays Wales, Scotland,  
78 Australia, and Canada as case examples for the incorporation of PL by assigning these countries  
79 a central role in the international overview.<sup>33</sup> In summary, these countries can be characterized as  
80 the 'flagships' of global PL dissemination. At the same time, the book demonstrates that positive  
81 developments can also be seen in India or New Zealand.<sup>33</sup> From a global perspective, substantial  
82 efforts remain to further expand the holistic and embodied idea of PL across the world.

83 When adopting a rather critical perspective on the current state of PL implementation, the  
84 focus is also directed on Europe. Whitehead's *Physical Literacy Across the World* has provided  
85 separate descriptions on the developments in Wales<sup>34</sup> and Scotland<sup>35</sup> with very promising dissem-  
86 ination progress found for the PL concept in these countries. However, in contrast, only a single  
87 chapter has been reserved for whole continental Europe.<sup>36</sup> As a strength, this description has iden-  
88 tified some common challenges in this region. For instance, it has been argued that physical edu-  
89 cation and movement education cannot be fully understood without the traditions of the different  
90 countries. A limitation of this work is that the chapter is largely dominated by Dutch experiences,

91 which undermines its generalizability for whole Europe.

92 In total, the current literature suggests the following: first, there is an unbalanced reporting  
93 regarding the current state of PL across Europe. As a result, there is no overview on PL for some  
94 European countries or regions available at all. In this regard, cultivating a more extensive and  
95 differentiated view would be highly beneficial to understand the specific situation within the Eu-  
96 ropean countries and, thereby, to be able to provide nuanced recommendations for researchers,  
97 practitioners, and policymakers. Second, the PL literature continues to gain considerable momen-  
98 tum.<sup>3,4,15</sup> Against this background, updates mirroring the most recent developments, even for  
99 countries with in-depth activities and identified as case studies, would be beneficial.

100

### 101 ***1.3 Purpose of This Study***

102 Given that there is no aggregated overview in the literature providing comprehensive country-  
103 specific or comparative insights on PL in Europe, we identified the potential and necessity to  
104 adopt a broader perspective on the current situation in this continent. Using an expert ap-  
105 proach,<sup>37,38</sup> the purpose of the present study was to take a European view on the present state of  
106 implementing PL by differentiating between research and practice/policy.<sup>39,40</sup> Specifically, the  
107 article addressed the following research questions: (1) What is the current state of PL in European  
108 countries and in Europe as a whole? (2) What are the commonalities and challenges for imple-  
109 menting PL across Europe (or certain European regions, respectively)? Based on the results, po-  
110 tential pathways should be derived for future PL efforts in Europe.

111

## 112 **2 Methods**

113 The present study used a successive, four-step research approach for addressing the two re-  
114 search questions. In the first step, experts were identified for the single countries. In this context,  
115 the International Physical Literacy Association (IPLA) took a decisive role for the growing snow-  
116 ball principle by suggesting contact persons, especially if no person was known to the first or last  
117 author. In the second step, the representatives of the single countries were invited to prepare short  
118 reviews about the current state of PL in their countries and to fill an overview table related to the  
119 categories 'research' and 'practice and policy'. In the third step, all reviews were subject to com-  
120 parative document analysis by a group of two researchers (JC, PE). In the final step, the two

121 researchers developed a survey to quantitatively re-validate the findings from the document anal-  
122 ysis.

123

### 124 ***2.1 Expert Identification***

125 The IPLA can be considered a non-governmental organization on the international scale which  
126 organizes and promotes exchange on matters of PL including, for instance, initiatives on research,  
127 advocacy, and education. As a result of the discussions at the 2021 annual conference of the IPLA  
128 (European Session; October 13<sup>th</sup>, 2021), the first author (JC) contacted a board member (NG) of  
129 the IPLA with the intention to identify potential experts (e.g., persons who had topic-related pub-  
130 lications or actively advocated the concept) for PL in Central Europe. Candidates were appointed  
131 for the following five countries: Austria (JJ, PH), the Czech Republic (JV), Denmark (PE, PB),  
132 France (CS, JG), and Switzerland (MRR). These candidates were contacted individually via elec-  
133 tronic mail and invited to join the present initiative. Within the scope of initial conversations,  
134 three additional experts were gained through snowballing principle representing the countries of  
135 Germany (CT) and Belgium (AM, KDM). At a later stage, the group decided to not limit itself to  
136 Central Europe but to include perspectives from other regions of Europe as well. This finally  
137 culminated in contacts (again mainly promoted by the IPLA) to representatives in Croatia (BG,  
138 DS), Cyprus (EC), England (NG), Finland (KS), Greece (VR), Italy (VZ), Lithuania (AE, BM),  
139 the Netherlands (IvH), Norway (JB), Poland (ILK), Portugal (JM, MO), Romania (TMI, BO),  
140 Scotland (GB), Wales (AB, LE), Spain (MMM), Sweden (AF, SL), Türkiye (GY), and Ukraine  
141 (IP). Two experts expressed their initial willingness to contribute to the study (Slovenia, Bulgaria)  
142 but did not respond to several emails repeatedly and, thus, had to be withdrawn from the process.  
143 All individuals of the 25 participating countries provided consent to contribute to this expert-  
144 driven project and to work together constructively in three structured online sessions.

145

### 146 ***2.2 Review Phase***

147 In the first two online meetings, all country representatives were asked to describe the current  
148 relevance of PL for their respective countries. Their summary should contain two interrelated  
149 parts. First, the representatives were asked to produce a text describing the importance of PL in  
150 their country – in the following named (short) review. In this regard, the representatives could

151 report freely as soon as both research aspects and practice/policy aspects were included. However,  
152 the experts were asked to limit country-specific descriptions to two pages not to inflate the length  
153 of reviews excessively. Second, the representatives were asked to fill a table that was categorized  
154 into a *research* perspective, on the one hand, and into a *practice and policy* perspective,<sup>39,40</sup> on  
155 the other (see Table 1 for the structure). This differentiation of results accounts for the finding  
156 that PL has both a theoretical (idealist position) and a practical (pragmatic position) value.<sup>21,40</sup>  
157 Within the scope of the second meeting, the whole group defined a deadline for the electronic  
158 transmission of the short reviews and the pre-structured table (April 2022).

159

### 160 **2.3 Comparison Phase: Comparative Document Analysis**

161 The first author (JC) collected all country-specific descriptions. Subsequently, the short re-  
162 views with the pre-structured tables were submitted to comparative document analysis<sup>41</sup> by fol-  
163 lowing a transnational four-eyes principle under the involvement of a researcher from another  
164 country (PE). This procedure had the advantages that (a) two persons performed all analyses with  
165 the material and (b) these two persons came from two different countries (to detach from the same  
166 cultural/linguistic background). Among the qualitative methods, document analysis is “a system-  
167 atic procedure for reviewing and evaluating documents” (p. 27).<sup>42</sup> Comparative document analy-  
168 sis has already been successfully employed in cross-cultural studies on health-related topics.<sup>43,44</sup>  
169 The methodological approach comprised four steps:<sup>41</sup>

170 (a) reading of the material: both extractors read all reviews at least twice (for the initial familiar-  
171 ization and the subsequent data extraction);

172 (b) extraction of data: both researchers extracted direct quotations of the country-specific reviews  
173 and assigned them to inductively derived (sub-)categories;

174 (c) analysis of data: the quotations of the sub-categories were analyzed and compared across dif-  
175 ferent countries; categories were slightly refined by following an iterative process between re-  
176 reading and in-depth analysis (e.g., initially conference and network aspects were part of a re-  
177 maining category but were then awarded an own category); as part of the comparative effort, the  
178 analyzing researchers placed particular emphasis on potential commonalities (homogeneity crite-  
179 rion) and differences (heterogeneity criterion);

180 (d) distillation of findings: the qualitative material was accumulated and re-validated with the  
181 country representatives by means of a quantitative rating.

182

#### 183 **2.4 Re-validation: Survey and Online-Meeting**

184 For re-validating the acquired qualitative findings in the sense of a complementary mixed-  
185 methods design,<sup>45</sup> the first and last author developed a quantitative survey in which the country  
186 representatives rated the current status of PL implementation along the ten aforementioned themes  
187 on a four-point scale (lowest value: 0, highest value = 3). To facilitate the rating and to compare  
188 the values between the different countries, we wrote operationalizing statements for the values of  
189 all four theme-related items (see Supplementary File 2). We thoroughly analyzed each value of  
190 the countries and categories separately and, subsequently, aggregated all items representing the  
191 current (i.e., the category “future/prospect” was excluded) state of PL to an overall implementa-  
192 tion score. For visual purposes, we portrayed the quantitative sum score within a comprehensive  
193 map of the European country with colors (lower values [0] in black/red; higher values [3] in green)  
194 using the open-source online service MapChart. Finally, all members of the working group were  
195 invited to a third (concluding) online meeting in which the representatives of the participating  
196 countries discussed the findings of the study (communicative validation) and derived future di-  
197 rections for PL efforts in Europe. All experts fully read and approved the content of the manu-  
198 script.

199

### 200 **3 Results**

201 All single country-specific descriptions, conceived as the raw material undergoing systematic  
202 document analysis, can be found in Supplementary File 1 in an alphabetical order. A comprehen-  
203 sive summary with the most important aspects (as defined by the different representatives) about  
204 the current state of implementation in the different countries can be retrieved from Table 1. The  
205 inductive procedure resulted in a total of ten themes across the different reports: the four themes  
206 ‘research projects and staff’, ‘research publications’, ‘assessment’, as well as ‘conferences and  
207 networking’ were assigned to the category ‘research’; we bundled the four themes ‘PL in policy  
208 and health documents’, ‘PL in the physical education curriculum’, ‘PL in national sport docu-  
209 ments or organizations’ and ‘practical initiatives’ to the category ‘practice and policy’; the themes

210 ‘general conceptual aspects’ as well as ‘future/prospect’ were of overarching interest and, there-  
211 fore, treated separately.

212

213 (Table 1)

214

### 215 **3.1 General Conceptual Aspects (Comparative Document Analysis)**

216 Most countries (48%) explicitly describe PL as a relatively new concept that has just recently  
217 witnessed its first introduction (Cyprus, Lithuania, Portugal, and Ukraine without exact date;  
218 Czech Republic in 2010, Austria in 2015, Greece and Italy 2016, France in 2018, Croatia and  
219 Spain in 2020, Romania in 2021). Several non-English speaking countries reported challenges in  
220 finding an adequate translation for PL (Austria, Germany, Cyprus/Greece, Czech Republic, Fin-  
221 land, Greece, Italy, Netherlands, Norway, Poland, Spain, Sweden, Ukraine). Typical for this sit-  
222 uation, for instance, the Finnish document revealed: “there is no common understanding of phys-  
223 ical literacy [...], even though there are couple of suggestions that could be used” (Supplementary  
224 File 1, lines 559-561). In accordance with this situation, PL often stands in concurrence to other,  
225 more established concepts, such as *competence/Kompetenz* (Austria, Belgium, France, Germany),  
226 *Agogi* (Cyprus, Greece), or *Danning/Bildung* (Germany, Norway). As a result of linguistic issues,  
227 related concepts or constructs are meeting the character of PL to varying degrees, including  
228 “Bewegungskompetenz” (movement competence, Austria), motor literacy (Greece and Spain),  
229 “Alfabetizzazione Motoria” (Italy), physical alphabet or movement identity (Netherlands),  
230 movement literacy (Norway), “understanding movement” (Sweden), or “personal physical cul-  
231 ture” (Ukraine). In most cases, these conceptual coexistences or sometimes divergencies were  
232 considered a barrier against the further use or dissemination of PL. In summary, the anglophone  
233 countries (especially England and Scotland) did not report such deep linguistic issues, although a  
234 Welsh translation (“Ilythrennedd corfforol”) exists. Portugal and especially Denmark, which has  
235 already undergone a consensus process on PL, also did not mention considerable conceptual chal-  
236 lenges. Interestingly, four countries drew parallels to the concept of health literacy when describ-  
237 ing developments of PL (Germany, Italy, Poland, Switzerland).

238

### 239 **3.2 Research (Comparative Document Analysis)**

### 240 3.2.1 Research Projects and Staff

241 The majority of countries reported that only a limited number of scientific projects and re-  
242 searchers deal with PL as an approach. Accordingly, some countries could more extensively de-  
243 scribe the small number of initiated projects (Austria with a pilot project in primary care, Cyprus  
244 with projects having primarily a sociological focus, Italy with a project for primary school chil-  
245 dren, Spain with a project on the development of an assessment instrument). As an alternative,  
246 some reports referred to single, important researchers or actors addressing PL, such as a professor  
247 (Finland), doctoral students (Denmark, France, Portugal, Romania, Scotland, Ukraine, Wales), or  
248 post-doctoral researchers (Denmark). Cyprus, Italy, Lithuania, and Romania explicitly stated a lack  
249 of research activities in their countries. In addition, the representatives of Belgium, Finland, Lith-  
250 uania, Poland, and Sweden indicated that there are projects that center around PL, but where the  
251 concept is not the core. As an example, the Belgian report disclosed that “PL-related behaviors  
252 and knowledge have been initiated [...] but without a comprehensive and holistic perspective on  
253 the concept” (Supplementary File 1, lines 109-112).

254 Despite the limited extent of scholarly projects, there are several national (e.g., Denmark,  
255 France, Spain) and especially international collaborations to promote PL across several locations  
256 simultaneously. For instance, there appear to be cross-country projects in Europe between France  
257 and Belgium (evaluation project ELIP), between Austria and Scotland (development of a health  
258 care-based assessment) as well as between Germany and Poland (project on PL in physical edu-  
259 cation). Similarly, Wales have an established collaboration with academics in Australia. Notably,  
260 the most prominent projects were Erasmus initiatives (PhyLit; Physical Literacy for Life) involv-  
261 ing research groups from (among others) Denmark, France, Lithuania, Portugal, Slovenia, Spain,  
262 Switzerland, and the United Kingdom. When taking a closer look at the purpose and content of  
263 the different projects, considerable diversity was found among the different countries, including  
264 projects with a focus on motivational aspects (Denmark), resilience in physical activity (France),  
265 socializing agents (Cyprus), aquatic experiences (Portugal), teaching styles (Italy), health conse-  
266 quences (Denmark, Italy), physical activity levels (Croatia, France, Scotland, Türkiye), commu-  
267 nity issues (Germany, Wales), interventions (Austria, Germany, Denmark, Norway, Wales), out-  
268 door education (Norway), assessment development (see section 3.3.3), or professional teacher



269 development (Wales). Finally, some reports disclosed that projects applications are currently run-  
270 ning to acquire funding for PL initiatives (Czech, Spain, Sweden).

271

### 272 3.2.2 Research Publications

273 In line with the analysis of the projects and actors in the previous chapter, the number of PL  
274 publications was, albeit heterogeneous in topics, limited in most of the included countries. There  
275 was great variety in publication format (e.g., books, conference contributions, chapters, articles)  
276 and some countries even highlighted theses as important contributions to PL in their countries  
277 (Czech, Greece, Portugal, Spain, Türkiye, Ukraine). Despite the low absolute research output dis-  
278 played by most documents, we ascertained that the number of publications relative to the number  
279 of involved groups can be interpreted more positively. Accordingly, the developments in several  
280 countries often depend on the effort and achievements of a single person. The concentration on  
281 single actors or groups becomes particularly apparent when reading the reports from Austria,  
282 Croatia, Cyprus, Czech, Denmark, Greece, France, Italy, Portugal, Romania, and Ukraine. A sub-  
283 stantial number of reports (Austria, England, Italy, Netherlands, Norway, Scotland, Wales) re-  
284 ferred to the conceptual ideas by Margaret Whitehead (England), which implicates that she has  
285 substantially influenced the developments in Europe. For instance, Whitehead has contributed  
286 with a translated chapter to Norwegian literature.<sup>46</sup>

287

### 288 3.2.3 Assessment

289 Language-compatible measurement instruments have the potential to rapidly produce empiri-  
290 cal research findings and may, therefore, be crucial for stimulating scholarly PL activities in the  
291 different countries. The number of references across the reports supports this relevance. In this  
292 regard, the anglophone countries clearly profit from the advanced status of English assessment  
293 instruments (England, Scotland, Wales). Croatia, Belgium/France, the Czech Republic, Denmark,  
294 Greece, Türkiye, and the Ukraine already possess translated PL assessments in their native lan-  
295 guage. Nonetheless, the Croatian group criticized that the “main limitation of studies investigating  
296 PL in Croatia is that only questionnaires assessing cognitive and affective domains were applied”  
297 (Supplementary File 1, lines 227-228). Portugal has created a new PL instrument for application

298 in the physical education context.<sup>47</sup> Moreover, instrument developments and validations are cur-  
299 rently under way in Austria, France, Germany, the Netherlands, Poland, Sweden, and Spain. Re-  
300 searchers across Europe most frequently undertook specific adaptations of the Canadian Assess-  
301 ment of Physical Literacy (CAPL or CAPL-2)<sup>8</sup> and the Physical Literacy Self-Assessment  
302 (PLAYself).<sup>48</sup> Despite the promising overall picture, only three countries reported that a PL as-  
303 sessment is part of larger survey activities. Sport England has undertaken the Active Lives Survey  
304 with five questions related to PL, and also Sport Wales School Sport Survey contained PL items  
305 but would have needed more questions with respect to children's motivation, confidence,  
306 knowledge, and understanding. A five-item PL measure will be included in a standardized moni-  
307 toring system on the regional level in Scotland. From a conceptual perspective, the report from  
308 Wales raised a "call for more holistic and non-linear approaches to assess physical literacy" (Sup-  
309plementary File 1, lines 1950-1951).

310

#### 311 3.2.4 Conferences and Networking

312 According to the analysis of the provided documents, several countries (Cyprus, Denmark,  
313 England, France, Germany, Greece, Lithuania, Poland, Portugal, Scotland, Spain, Sweden,  
314 Ukraine, Wales) already had structured academic exchange on PL on the national level, for in-  
315 stance, through networks or conferences. As an example, regular conferences were arranged in  
316 Sweden focusing on PL, linking mobility and community building to encourage people to engage  
317 in physical activity in everyday life. Notably, in Czech, England, French, Denmark, and Wales,  
318 exchange or consultation extended into ministerial and political spheres. In contrast, it was ex-  
319plicitly reported that no networks exist in Finland and Türkiye.

320 From an international perspective, the IPLA strongly promoted exchange on and advocacy for  
321 PL, with England taking the role of the initial driver. In 2020, the AIESEP (Association Interna-  
322 tionale des Écoles Supérieures d'Éducation Physique) has hosted a specialist symposium in 2020  
323 in Belgium to innovate pedagogies for PL. Furthermore, the University of Lisbon (Portugal) has  
324 organized an international PL seminar under the Erasmus project "Physical Literacy for Life".

325

### 326 3.3 Practice and Policy (Comparative Document Analysis)

#### 327 3.3.1 Physical Literacy in Policy

328 The reports revealed that PL plays hardly any role in political statements or health agen-  
329 das/documents across the countries included. This circumstance was explicitly mentioned by Aus-  
330 tria, Belgium, Finland, France, Germany, Italy, Norway, Poland, Romania, Spain, Sweden, Tü-  
331 rkiye, and the Ukraine. More specifically, the Turkish review disclosed that “no NGOs or initia-  
332 tives have been created to support PL [...] policy in Türkiye” (Supplementary File 1, lines 1802-  
333 1803). Interestingly, the First Lady of Lithuania, Diana Nausediene, has taken advocacy for pro-  
334 moting PL in her country, with the COVID-19 quarantine clearly stressing “the undeniable need  
335 to develop general physical literacy, which becomes a vital need for the human being” (Supple-  
336 mentary File 1, lines 1029-1030). The concept has also permeated political documents in Portu-  
337 gal.<sup>49,50</sup> The anglophone countries again reported somewhat further progress. In Scotland, author-  
338 ities on the local and regional levels used the approach with PL inspiring the Public Health Ser-  
339 vices. Although not embedded within Scottish policy, PL as a part of a cross-sector, life course  
340 approach is hoped to increase population levels of physical activity. In England, the 2021 House  
341 of Lords report on sport, health, and wellbeing underlined the developmental value of PL for  
342 children and declared the concept to be a key principle in the national plan. In a response state-  
343 ment, the government echoed the relevance of PL for tackling physical inactivity and well-being,  
344 especially when setting up national plans for the target group of children and the setting of  
345 schools. Finally, the Welsh Government (Llywodraeth Cymru) prioritized PL at the political  
346 level. More recently, Sport Wales has employed PL consultants to work with National Governing  
347 Bodies to embed PL into their strategies for the community setting.

348

### 349 3.3.2 Physical Literacy in the Physical Education Curriculum

350 The representatives of Belgium, Croatia, Czech, Finland, France, Germany, Italy, Netherlands,  
351 Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Türkiye, and Ukraine ex-  
352 plained directly that educational curricula do not recognize PL as an explicit concept or principle.  
353 However, several reports declared that the existing curricular descriptions harmonize well with  
354 the idea of PL and its components, although they may not mention the concept verbatim (Belgium,  
355 Cyprus, Netherlands, Norway, Poland, Portugal, Scotland, Sweden, Switzerland, Wales, Tü-  
356 rkiye). For example, the Portuguese representatives expressed: “In the PE syllabus, there is no  
357 explicit mention to PL, but the main goals resonate well with the PL concept” (Supplementary

358 File 1, lines 1288-1289). In contrast, PL has entered the new 2021 curriculum of all tiers of the  
359 Greek curriculum and also Danish School Sports as a government-related organization has  
360 adopted the concept. Taking a critical perspective, Finland has fitness outcomes in its core cur-  
361 rriculum, but it does not explicitly contain a knowledge and understanding aspect. Moreover, the  
362 Croatian and Cypriot representatives identified a gap between curriculum goals and factual prac-  
363 tices, and Romania with its “sport-based approach” currently appears to be a distance away from  
364 meeting the holistic character of PL. Nonetheless, single representatives explained that PL may  
365 be considered in current or upcoming reforms in Czech, Finland, and Lithuania (LNOC initiative).  
366 In summary, there are only single countries in which PL serves as *the* concept for learning pro-  
367 cesses in the educational context.

368

### 369 3.3.3 PL in National Sport Documents or Organizations

370 PL is not officially promoted as an explicit concept by the main sport organizations or feder-  
371 ations in Croatia, Cyprus, Finland, Germany, Norway, Poland, Romania, Türkiye, and Ukraine.  
372 In this regard, the Ukrainian report can be cited representatively with the statement that “PL as a  
373 holistic concept is missing in national-level documents related to [...] sport, and the promotion of  
374 physical activity.” (Supplementary File 1, lines 1872-1873). In contrast, the major organizations  
375 in Denmark (DGI), England (Sport England), Lithuania (LNOC), Netherlands (NOC\*NSF), Por-  
376 tugal (IPDJ, COP, DGS-PNPAF), Sweden (SSC), and Wales (Sport Wales) acknowledge the rel-  
377 evance of PL. In the country-specific reviews that indicated reasons and goals of sport organiza-  
378 tions to adopt PL, the spectrum ranged from intended increases in sport participation and the  
379 detection of talents in the Netherlands to the promotion of a holistic (physical, social, mental, and  
380 athletic) human development for making people move throughout life in Sweden. The countries  
381 of Cyprus with the values of Olympism and Norway with its “sport for all” vision perceive at  
382 least high compatibility with the values of PL. Finally, there are smaller organizations in Cyprus  
383 (Pancyprian Association of Graduates of Physical Education and Sports Science), France (French  
384 Omnisports Federation), and Germany (dsj) which mention the concept within their relatively  
385 limited sphere of influence. The Cypriot association included PL into their goals and pointed out

386 the importance of acknowledging and advocating for PL across different sectors, while the Ger-  
387 man organization underscores the value of PL by giving practitioners insights into a coaching  
388 project (iCoach Kids).

389

#### 390 3.3.4 Practical Initiatives

391 While PL has made relatively few inroads into documents and statements of policy, education,  
392 health, and associations, a number of countries reported projects in practice. In Austria, the region  
393 of Styria has undergone the roll-out of a PL intervention among physically inactive adults in the  
394 primary care setting.<sup>51</sup> Interventions with a focus on the cognitive and affective domain of PL  
395 have been conducted in high schools of eastern Croatia. Two ministries in Cyprus have dissemi-  
396 nated a national fitness assessment program for adolescents in secondary schools. Interested par-  
397 ties in Denmark have formed a national cross-sectoral network and yielded a PL consensus among  
398 organizations, institutions, NGOs, and companies. French actors have implemented a PL inter-  
399 vention in a school and have provided toolkits to empower citizens, teachers, and coaches for  
400 promoting the concept effectively. Furthermore, Germany has yielded some participatory transfer  
401 projects to target students' health-related knowledge and understanding (school setting) and to  
402 reach elementary school children and their families (community setting). Lithuania has set up  
403 several projects to develop a PL-based education model for preschool and primary school children  
404 and to implement it with international partners from practice. Supported by several educational  
405 institutions, the Fitescola project has resulted in continuous professional development courses and  
406 modules for physical education teachers in Portugal. Scotland has numerous practical initiatives  
407 related to PL, including a regional communications campaign for adults, a local weight manage-  
408 ment service for families, routinization of PL assessments, as well as community instructor and  
409 primary teacher training (including plans to target other related groups across sectors). The Swe-  
410 dish experts listed four different projects, from physical activity promotion in children (modifying  
411 the school setting to promote the physical activity, health, and well-being of preschool children  
412 until grade six), supply of risky movement forms, leadership development to the promotion of  
413 environmental changes for all people in the community. Finally, Wales has released comprehen-  
414 sive educative materials (videos, interactive illustrations) on PL and undertook efforts to also  
415 reach the community level. The biggest amount of money (2.3 million USD) was invested in the

416 dissemination of “Physical Literacy Programme for Schools” (2014-2017) to address Welsh pu-  
417 pils in secondary school through a political agenda of increasing young people’s engagement and  
418 confidence in schools and reducing the impact of deprivation on academic attainment.

419

### 420 **3.4 Future/Prospect (Comparative Document Analysis)**

421 Despite the currently limited implementation level of PL across Europe, the representatives of  
422 almost all countries anticipate an increasing consideration or popularity of the concept in the near  
423 future (Austria, England, Finland, France, Germany, Italy, Lithuania, Netherlands, Norway, Po-  
424 land, Portugal, Scotland, Spain, Sweden, Türkiye). For instance, the Swedish experts commented  
425 that PL in their country “had a slow start but is now growing” (Supplementary File 1, line 1583)  
426 and the Scottish representative identified a “potential to increase traction in the coming years”  
427 (Supplementary File 1, line 1500). In this context, some stakeholders consider linguistic-concep-  
428 tual clarifications (Austria, Cyprus, Germany) and advancements of assessment instruments (Aus-  
429 tria, Croatia, England, Poland, Türkiye; ideally while considering non-linear approaches: Wales)  
430 as important steps or essential drivers for the dissemination of PL in their countries. The Roma-  
431 nian representatives leveled skepticism expressing that “changes are not to be seen soon, given  
432 that even in the discourse of researchers, the concept does not seem to be too popular” (Supple-  
433 mentary File 1, lines 1374-1375).

434

### 435 **3.5 Revalidated Summary (Rating Through Quantitative Survey)**

436 All eleven items, including their introducing instructions and operationalizations for the four  
437 values, can be retrieved from Supplemental Material 2. Among the different countries ( $M_{\text{all}} =$   
438 1.03), England scored highest in the total implementation rating ( $M = 2.50$ ), followed by Denmark  
439 ( $M = 1.90$ ) and Wales ( $M = 1.70$ ). On the contrary, Romania ( $M = 0.40$ ) and Poland ( $M = 0.50$ )  
440 displayed the lowest implementation status. Figure 1 illustrates the implementation across Europe  
441 with a colored map. When analyzing the mean values per theme, the category future/prospect had  
442 the highest value ( $M = 1.76$ ). This is in line with the qualitative material from the country-specific  
443 reviews. The mean values of all remaining items were located in the lower half of the scale (Item  
444 difficulty  $\leq 0.427$ ). More specifically, the current status of research publications was rated as

445 comparably positive ( $M = 1.28$ ), while assessments had the lowest mean value across the 25 coun-  
446 tries ( $M = 0.64$ ). Although the qualitative analysis would have suggested a better implementation  
447 score for Scotland ( $M = 1.20$ ), taken together the survey largely corroborates the findings from  
448 the comparative document analysis.

449

450 (Figure 1)

451

#### 452 **4 Discussion**

453 The PL approach has the potential to complement existing concepts related to physical activity  
454 through the simultaneous consideration of physical, cognitive, affective, and sometimes also so-  
455 cial components. Driven by the holistic message, important documents (such as the GAPPA or  
456 the QPE)<sup>25,26</sup> recommend aligning national and international initiatives with this concept. How-  
457 ever, not all countries have adopted this concept equally and, more importantly, academic litera-  
458 ture has accumulated scant knowledge in regard to the implementation status on the European  
459 continent.<sup>33</sup> Therefore, the goal of the present study was to broadly assess and compare the PL  
460 situation across Europe.

461 This mixed-methods study revealed a heterogeneous picture of PL for Europe by reviewing  
462 and analyzing local expert descriptions (Research Question 1). In summary, the scholarly PL ac-  
463 tivities of most countries only refer to single research groups and projects, resulting in a limited  
464 number of publications and rather small networks. In parallel, PL rarely permeated PE curricula,  
465 policy documents, sport sectors, and practical initiatives. Surprisingly, we determined such an  
466 underdeveloped situation not only for the more east European countries of Romania, Cyprus, or  
467 Türkiye, but also for the highly privileged and populous countries Italy, Germany, and France.  
468 Conversely, the present analysis certified more advanced PL developments for England, Den-  
469 mark, and Wales. While a recent consensus paper and a previous chapter have already described  
470 such developments for England and Wales, respectively,<sup>34,52</sup> this is the first study elucidating the  
471 more positive situation for Denmark. Scotland has displayed mixed findings, with the qualitative  
472 material confirming a report of a more advanced implementation status<sup>35</sup> and the quantitative  
473 approach implying space for improvement.

474 Taken together, the present study recognized the pattern that two factors play a major role with  
475 respect to the adoption of PL (Research Question 2). First, *language* turned out to be a decisive  
476 promotor for or barrier against the use of PL as a guiding concept. More specifically, not only the  
477 notion of “literacy” creates confusion issues, as translation equivalents often do not meet the orig-  
478 inal character, but in particular its combination with the attribute “physical”.<sup>53</sup> Accordingly, the  
479 anglophone countries (England, Wales, Scotland participated in this study) more easily accept or  
480 incorporate this technical term. Second, related to that, PL often stands in “competitive” relation-  
481 ship to *existing physical activity approaches*, that have over decades become firmly entrenched  
482 within the different countries. In the case of compatibility of PL with these established concepts,  
483 PL must be translated appropriately to enable sound scientific exchange within the country and  
484 beyond the national borders. In case of no or incomplete compatibility with established concepts,  
485 the PL concept can, from a theory of science perspective, be interpreted as a “pre-paradigm” (page  
486 47)<sup>54</sup> phenomenon that is initially represented by a small minority of the scientific community.  
487 Only when a concept is successful in addressing or explaining some of the “blind spots” of an  
488 established paradigm (the so called “normal science” (page 53)<sup>54</sup> paradigm), PL has the potential  
489 to gain increasing attention and may become an accepted scientific approach in the long term. In  
490 any case, our analyses showed that the PL concept cannot be understood without capturing the  
491 traditions and cultures of the included countries. This statement specific to Europe can be gener-  
492 alized more globally when highlighting the recent PL consensus for the Greater China Region  
493 which based on the assumption that, for instance, Confucianism or Taoism have to be respected  
494 when deriving a culturally tailored PL model.<sup>14</sup>

495 Furthermore, the present study demonstrated that the development of standardized assessment  
496 instruments or topic-specific networks may constitute an important step in intensifying PL activ-  
497 ities. Valid and reliable assessment tools (quantitative) and standardized interview guides (quali-  
498 tative) represent worthwhile opportunities to familiarize other researchers and stakeholders with  
499 a holistic framework and to broaden horizons through a multidimensional perspective. In general,  
500 such methodological steps often serve as catalysts for further empirical projects and studies. Sim-  
501 ilarly, the establishment of a network offers the potential to benefit actors who rely on or have  
502 interest in interdisciplinarity/transdisciplinarity – a description that harmonizes well with the PL



503 approach, in specific,<sup>20,30,55</sup> and with research on exercise, sport, and physical activity, in gen-  
504 eral.<sup>56,57</sup> When deriving further recommendations from this study, we encourage researchers in  
505 Europe to formally analyze how the PL concept fits with the descriptions of physical education  
506 curricula and of the most important documents of the sport and policy fields within their countries.  
507 Ideally, this first-step analysis only takes place on a *descriptive* basis by targeting the question of  
508 whether and to which extent PL is compatible with the existing descriptions. We anticipate that a  
509 *too normative* impetus, especially in case of strong incompatibilities, may deter current protago-  
510 nists of the practical or academic fields and, therefore, rather counteract the important task of  
511 spreading the holistic message of PL. Instead, it could make sense to acquire funding for empirical  
512 studies examining the postulated value of PL for physical activity and health<sup>19,20</sup> in further cultures  
513 and populations. But in addition to potential explorations of the concept on the national level,  
514 researchers may also continuously benefit from following international PL debates. As this study  
515 has shown, European countries often face similar linguistic, conceptual, pragmatic, political, and  
516 sometimes strategic problems when dealing with the PL approach. In this regard, international  
517 collaborations and partnerships can promote mutual learning processes and, hence, appropriate  
518 responses to challenges in the context of the holistic PL concept and its prominent philosophical  
519 underpinnings. Against this background, networks – whether it is, for instance, a special interest  
520 group of the IPLA, the initiated network of this European study, or scientific associations – are  
521 advised to point out potential pathways or future directions for the further course of PL in Europe.  
522 In this context, the present study has shown that the holistic claim of PL directed toward the fields  
523 of physical activity promotion, sport, and physical education (as suggested by the GAPPA or the  
524 QPE)<sup>25,26</sup> is not adequately met across the continent. In the future, researchers could conduct the  
525 same methodology, especially the quantitative survey, with the representatives again (e.g., after  
526 five to seven years) to map potential changes and developments in Europe. A repeated employ-  
527 ment of the assessment instrument may serve to evaluate whether increasing efforts were taken  
528 to further disseminate the concept as part of the global strategy to work toward a reduction of  
529 physical inactivity prevalences by 15% in 2030.<sup>25</sup> Moreover, scientific projects could apply a  
530 similar approach in other areas of the world (e.g., Asia or South America), where PL development  
531 is not well described.

532 Despite the integration of multiple perspectives from different countries and the employment  
533 of a mixed-methods approach, the present study has some limitations. First, all country-specific  
534 reports were compiled by single actors (two persons at maximum) as part of a snowballing pro-  
535 cedure. In this regard, the documentation of the situation depends on the expertise, experiences,  
536 and views of single persons. Although subjective perceptions are highly important for classifying  
537 and evaluating implementation states,<sup>58</sup> the reviews may have been significantly affected by the  
538 idiosyncratic perspective of the representatives. As an alternative approach, researchers may have  
539 attempted to screen all documents in Europe referring to the PL concept. However, due to the  
540 extent of material acquired, this strategy has turned out to be economically unrealizable. Second,  
541 the defined word limit for the reports was driven by the purpose to concentrate the summaries on  
542 the most relevant aspects and to ensure comparability across the different documents. This text  
543 demand may have masked some single aspects of implementation, especially in countries with an  
544 advanced status and a larger number of activities. Third, we gathered the quantitative items from  
545 the ten themes of the qualitative material. Accordingly, the items were not psychometrically val-  
546 idated for this study. Given this restriction, we (a) introduced separate operationalizations for each  
547 item and response option, (b) did not compare aggregated scores for the meta-categories “re-  
548 search” and “practice and policy”, (c) refrained from analyzing the survey from an inferential  
549 statistic perspective, and (d) just undertook descriptive analyses. Fourth, a total of 22 European  
550 countries (46.7%) were not included in the present study, which implicates that Europe as a con-  
551 tinent was not represented as a whole. Unfortunately, we were not able to identify PL experts for  
552 each country or, in two cases, strategic reasons undermined the potential contribution to this ini-  
553 tiative. Therefore, the challenging situation of PL in Europe may have even been biased positively  
554 in this study, as the identification of contact persons in countries without any PL activity would  
555 have been considerably more problematic. Nevertheless, the present study by far exceeds and  
556 updates previous attempts that have mapped the PL situation in Europe.<sup>36</sup> Experts from countries,  
557 that were not included in this project (researchers may have just initiated PL research), are wel-  
558 come to contact the present network for their potential involvement in future updates regarding  
559 the situation of PL in Europe.

560

561 **5 Conclusion**

562 There is considerable heterogeneity in the degree of how PL is adopted and implemented  
563 across Europe. Only few countries (especially the anglophone countries) largely contribute to the  
564 registered growth in the attention toward this concept. As the implementation of the PL approach  
565 depends highly on the dominance of established concepts, we recommend researchers to invest  
566 substantial effort in clarifying the conceptual overlap, i.e., the basic (non-)compatibility, with PL  
567 in the different European countries. Researchers may draw on consensus methods with further  
568 experts in order to materialize this in practice.<sup>59</sup> The development of standardized instruments or  
569 reports on interventions may support the extraction of empirical arguments for or against follow-  
570 ing the PL approach in the different countries. In this context, practitioners and policymakers are  
571 encouraged to enable further experiences with the PL concept, for instance, by providing tem-  
572 poral, personal, and financial resources across the different countries and cultures. However, it  
573 may take some time until implementation progress, if achieved at all, is seen in the different re-  
574 gions of the continent. In this context, the inclusion of PL in important international documents,  
575 such as GAPPA or QPE,<sup>25,26</sup> combined with increasing evidence regarding the usefulness of the  
576 concept<sup>20</sup> may help to further enlighten the postulated advantages of the concept (e.g., holism,  
577 philosophic underpinning, life course perspective). In summary, the PL concept may contribute  
578 to a more holistic consideration of person-centered qualities for physically active lifestyles, with  
579 the present study delivering comprehensive insights regarding the current implementation of the  
580 concept in Europe.

581

## 582 **Declarations**

### 583 *Authors' contributions*

584 Conceptualization: Johannes Carl & Peter Elsborg; Country-specific reviews and tables: All au-  
585 thors, except of the first and last author; Data curation: Johannes Carl; Formal analysis: Johannes  
586 Carl & Peter Elsborg; Funding acquisition (internal): Peter Bentsen; Investigation: Johannes Carl  
587 & Peter Elsborg; Methodology: Johannes Carl & Peter Elsborg; Project administration: Johannes  
588 Carl; Software: Johannes Carl & Peter Elsborg; Supervision: Johannes Carl, Nigel Green, Peter  
589 Bentsen, & Peter Elsborg; Revalidation: All authors; Visualization: Johannes Carl; Writing - orig-  
590 inal draft: Johannes Carl; Writing - review & editing: All authors.

591

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599

600 ***Conflicts of interest***

601 The following authors have an official role within the International Physical Literacy Association  
602 (IPLA): Nigel Green (England) is the official chair, Gillian Bartle (Scotland) leads a special in-  
603 terest group, and also Peter Elsborg (Denmark) and Efstathios Christodoulides (Cyprus) are reg-  
604 istered ambassadors within the IPLA. Although all authors declare that they have no conflicts of  
605 interest relevant to the content of this article, this information should be made transparent within  
606 the scope of this article.

607

608 **Figure Captions**

609 *Figure 1.* A map of Europe visualizing the state of implementation in the participating countries  
610 (quantitative results).

611 Note: Details of the quantitative survey data can be found in Supplementary File 2; the map has  
612 been created with MapChart; grey countries did not participate in the present study.

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1 **Tables**

## 2 Table 1. Characterization of the current state of PL for each country.

	<b>Research</b>	<b>Practice and Policy</b>
<b>Austria</b>	<ul style="list-style-type: none"> <li>- Only few research projects on PL</li> <li>- Focus on physically inactive adults within the primary care setting</li> <li>- Activities refer to the evaluation of PL interventions and a measurement tool for PL</li> </ul>	<ul style="list-style-type: none"> <li>- PL not explicitly quoted in national policy documents on physical activity promotion</li> <li>- PL initiatives conducted in collaboration with the largest social insurance agency</li> <li>- Projects focusing PL as a transfer from science to practice</li> </ul>
<b>Belgium</b>	<ul style="list-style-type: none"> <li>- Early-stage research about the development of PL assessment tools in the school and health (chronic disease patients) contexts</li> <li>- Development of tools associated to PL (aquatic literacy, motivation) but without a comprehensive integration of the concept</li> </ul>	<ul style="list-style-type: none"> <li>- Consideration of PL as an umbrella concept in the new physical activity and health curriculum (Wallonia-Brussels)</li> <li>- Active school projects supported by the government connecting schools to local community (Flemish)</li> <li>- No explicit consideration of PL in the actual policies and out of school statements</li> </ul>
<b>Croatia</b>	<ul style="list-style-type: none"> <li>- Very recent topic</li> <li>- PL first mentioned in research on Croatian adolescents in 2020</li> <li>- Few papers have been published regarding the validity and reliability of translated PL questionnaires in adolescents</li> </ul>	<ul style="list-style-type: none"> <li>- PL concept is not included in physical education curriculum nor in sports settings</li> <li>- PL interventions regarding cognitive and affective domains of PL created and implemented (on a local and not national level)</li> <li>- Creating PL projects, but on the local and not on the national level (yet)</li> <li>- No consensus statement about the PL in Croatian</li> </ul>
<b>Cyprus</b>	<ul style="list-style-type: none"> <li>- Recent appearance of the PL term in research</li> <li>- Limited number of researchers involved in related research</li> <li>- International collaborations with organizations working on PL have been established</li> <li>- Recent appearing of PL in national Scientific Symposiums and Conferences</li> <li>- Existence of other related concepts e.g., Olympic Education, Φυσική Αγωγή</li> </ul>	<ul style="list-style-type: none"> <li>- The notion is currently not referred to any official political position statements</li> <li>- Evidence and interest from the first sport related association (PASY-PEFAA) on the concept</li> <li>- Appointment of a country lead by IPLA</li> <li>- Erasmus+ Sports bids on Physical Literacy related projects</li> </ul>

<b>Czech Republic</b>	<ul style="list-style-type: none"> <li>- Growing popularity of PL in research (but in other nomenclature)</li> <li>- Using translation of existing tools to measure PL</li> <li>- Debate of experts on PL understanding</li> <li>- Expecting greater support for the concept in near future</li> </ul>	<ul style="list-style-type: none"> <li>- Working on revision of national curriculum documents</li> <li>- Teaching future PE teachers about the concept</li> <li>- Improving communication about the meaning of the concept</li> <li>- Expecting future project on PL</li> </ul>
<b>Denmark</b>	<ul style="list-style-type: none"> <li>- Growing popularity and funding of PL research</li> <li>- National/local groups of researchers interested in the concept, seminars and conferences held</li> <li>- Research activities within conceptualization, assessment and interventions initiated</li> <li>- Research papers published from various research groups</li> <li>- International collaborations established</li> </ul>	<ul style="list-style-type: none"> <li>- National intersectoral network established</li> <li>- Interest from national health body</li> <li>- Adopted as a key concept in national sporting organizations (DGI and Dansk Skoleidræt)</li> <li>- Consensus statement signed by several organization, institutions, NGOs, and companies</li> <li>- PL assessment included in large scale national representative sport and exercise survey</li> </ul>
<b>England</b>	<ul style="list-style-type: none"> <li>- Concept established by Margaret Whitehead</li> <li>- Initial work was to establish the philosophical basis of PL and advocacy</li> <li>- Further development of understanding related to intentionality, embodiment, and flourishing</li> <li>- Sport England – Active Lives Survey with five questions</li> <li>- Most recent research focus on assessment or charting progress</li> </ul>	<ul style="list-style-type: none"> <li>- International Physical Literacy Association established in 2014</li> <li>- House of Lords report ‘A national plan for sport, health and wellbeing’ highlighted the importance of PL as a focus for PE in schools and for all ages and backgrounds</li> <li>- Youth Sport Trust fully support the focus on PL in schools</li> <li>- Sport England indicate that the elements of PL provide clear evidence in relation to their influence on children’s attitudes towards valuing and engaging in physical activity</li> <li>- No explicit reference to PL in National Curriculum</li> </ul>
<b>Finland</b>	<ul style="list-style-type: none"> <li>- Position for associate professor in sport pedagogy and physical literacy at the university of Jyväskylä (Faculty of Sport &amp; Health Sciences)</li> <li>- Research in PE focused more to SDT, which relates to key domains of PL (Affective, physical)</li> <li>- Expecting increasing attention in the next future, some projects starting to collect data around the topic</li> </ul>	<ul style="list-style-type: none"> <li>- No adoption of PL in political position statements</li> <li>- Practically no relevance for physical education curriculums (yet)</li> <li>- PL concentrates mainly on physical education, not on sport organizations or even national Olympic committee</li> <li>- No consensus statement about PL in Finnish</li> </ul>

<b>France</b>	<ul style="list-style-type: none"> <li>- Very recent topic</li> <li>- Advocacy</li> <li>- Creation of tools for young adults and older adults with chronic conditions</li> <li>- Potential links to sustainability</li> </ul>	<ul style="list-style-type: none"> <li>- Interest from PE and sport policy but no adoption of PL in any political statement</li> <li>- Private clubs start to adopt PL as a key framework</li> <li>- Participation of France in a European consensus around PL</li> </ul>
<b>Germany</b>	<ul style="list-style-type: none"> <li>- Growing popularity of PL in research</li> <li>- Most activities refer to interventional efforts</li> <li>- Expecting increasing attention in the next future</li> <li>- The field is strongly occupied by other related concepts (especially “competence”)</li> </ul>	<ul style="list-style-type: none"> <li>- No adoption of PL in political position statements</li> <li>- Practically no relevance for physical education curriculums</li> <li>- Focus on the competence concept dominates PA practices</li> <li>- Few projects focusing PL as transfer projects (from science to practice)</li> </ul>
<b>Greece</b>	<ul style="list-style-type: none"> <li>- Recent topic</li> <li>- Few research papers and book texts published</li> <li>- Validation of the Canadian Assessment of Physical Literacy-2 for Greek children</li> </ul>	<ul style="list-style-type: none"> <li>- Adoption of PL in all school curricula and political statement</li> <li>- PL is identified with the objectives, strategies, and practices of physical education</li> <li>- Presence of PL in undergraduate courses for students enrolled in physical education and early childhood education</li> <li>- PE teacher training about the concept</li> </ul>
<b>Italy</b>	<ul style="list-style-type: none"> <li>- Very recent topic</li> <li>- Recently growing popularity of PL in research</li> <li>- Expecting increasing attention in the next future</li> </ul>	<ul style="list-style-type: none"> <li>- No adoption of PL in political position statements</li> <li>- No explicit reference to PL in National Curriculum</li> <li>- Qualified PE teachers in primary schools starting from 2022/2023</li> <li>- Expecting future projects on PL</li> </ul>
<b>Lithuania</b>	<ul style="list-style-type: none"> <li>- Very recent topic</li> <li>- Recognized in the academic field, however no significant study has been published yet</li> <li>- Separate aspects of PL are explored, however, gaps in the complex analysis are still apparent</li> </ul>	<ul style="list-style-type: none"> <li>- Initiative is taken by the Lithuanian Olympic Committee to adopt and implement PL in preschool and primary school (however actions are fragmented)</li> <li>- PL has not been promoted on the policy level yet</li> <li>- A new project is prepared that includes PL as a basis and that accounts for the new physical education curriculum</li> <li>- Increasing implementation in PE practice is expected for the future</li> </ul>

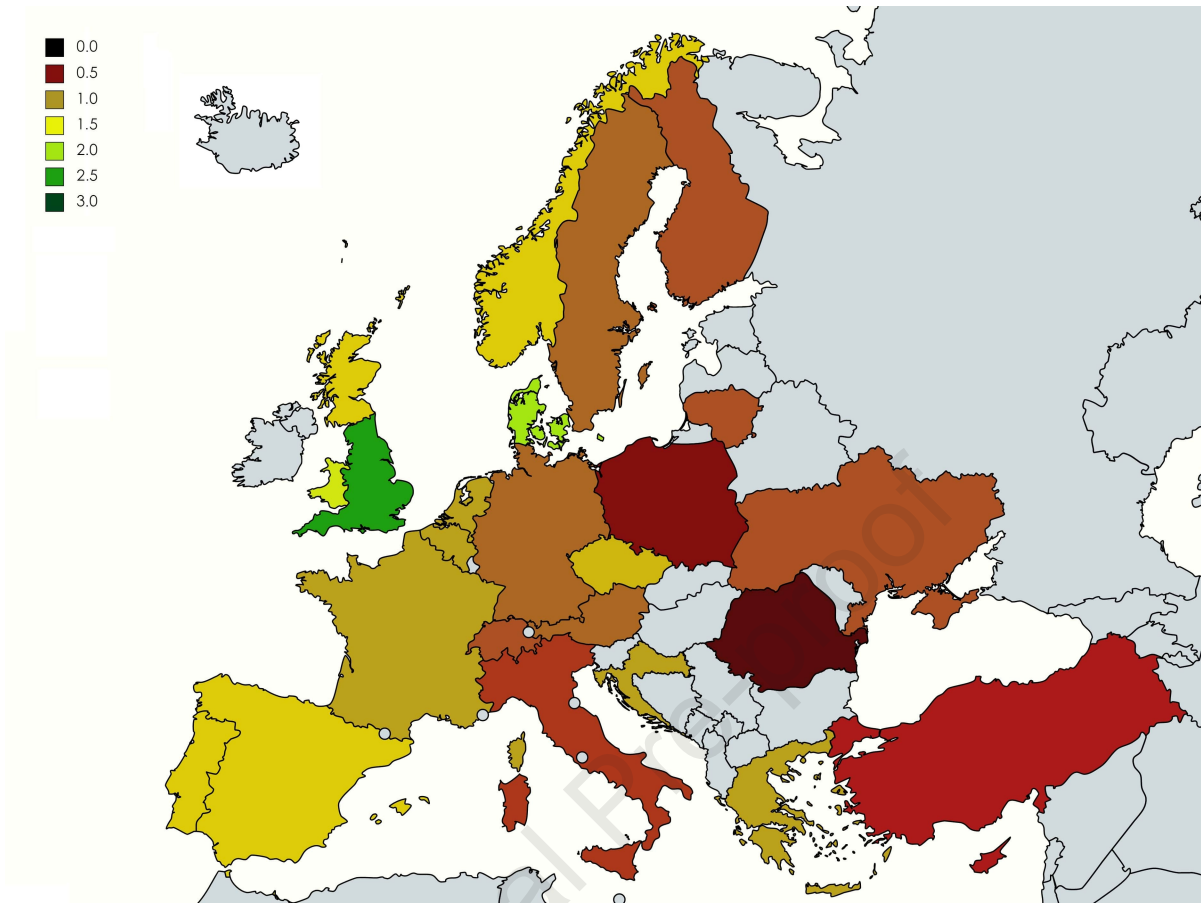
<b>Netherlands</b>	<ul style="list-style-type: none"> <li>- First publication on PL in 2013, publication of a whitepaper on PL in 2019, chapter on PL in continental Europe in <i>Physical Literacy across the World</i> (2019)</li> <li>- Contact with IPLA</li> <li>- Growing popularity of PL in research</li> <li>- PL highly influenced by other (than pedagogical) scientific fields, such as motor learning, talent identification, monitoring and assessment</li> </ul>	<ul style="list-style-type: none"> <li>- Increased attention, debates, publications for professionals</li> <li>- No adoption of PL in political position statements</li> <li>- The revision of national curriculum documents is influenced by the debates on PL, but no explicit reference to PL</li> <li>- Introduction and use of alternative (but similar) concepts in curriculum documents, such as <i>sport identity</i> and <i>movement identity</i></li> </ul>
<b>Norway</b>	<ul style="list-style-type: none"> <li>- National/local research groups are interested in the concept</li> <li>- Field strongly occupied by other related concepts (“dannelse”/bildung)</li> <li>- PL part of debates surrounding the justification of “Kroppsøving” (PE)</li> <li>- Ongoing research related to PE on life skills and health literacies</li> </ul>	<ul style="list-style-type: none"> <li>- Teaching future PE teachers about the concept</li> <li>- No explicit reference to PL in the national curriculum</li> <li>- The national curriculum is occupied by related concepts (lifelong joy of movement)</li> <li>- No adoption of PL in political position statements</li> </ul>
<b>Poland</b>	<ul style="list-style-type: none"> <li>- Very little research on this area</li> <li>- First research activities refer to the validation of the CAPL-2</li> <li>- Challenge with the translation of the PL term into Polish</li> </ul>	<ul style="list-style-type: none"> <li>- PL is not mentioned in policy and education documents</li> <li>- Elements of PL are conceptualized in the PE curriculum</li> <li>- National and regional projects deal with PL elements</li> </ul>
<b>Portugal</b>	<ul style="list-style-type: none"> <li>- Recent topic and growing popularity of PL in research</li> <li>- PhD Studies for developing instruments for measuring PL in PE and aquatic contexts (early-stage research)</li> <li>- Researchers’ participation in international projects</li> <li>- Research papers published, seminars and conferences held</li> <li>- Lack of intervention studies</li> <li>- Expecting increasing attention in the next future</li> </ul>	<ul style="list-style-type: none"> <li>- PL is firstly adopted in political statements and documents</li> <li>- Intersectoral collaborations of the FMH/UL team with ministries, other university partners, and municipalities.</li> <li>- PL is aligned with the PE curriculum goals</li> <li>- Some transfer projects with a focus on PL</li> <li>- PL training is implemented in undergraduate, master, post-graduate, PhD, and CPD levels</li> </ul>
<b>Romania</b>	<ul style="list-style-type: none"> <li>- The concept is extremely recent</li> <li>- Only the cognitive field is highlighted</li> <li>- It is used to propose a “knowledge-based approach” to PE</li> </ul>	<ul style="list-style-type: none"> <li>- The all-encompassing concept is not found</li> <li>- Changes in the curriculum that introduce a theoretical content</li> <li>- A PE textbook was published for the 5th and 6th grades</li> </ul>

<b>Scotland</b>	<ul style="list-style-type: none"> <li>- Further research on understanding ‘literacy’ within PL</li> <li>- Continued development of a communication strategy</li> <li>- PL assessments in a regional weight management programme and in the annual school's physical activity survey</li> <li>- Public Health Scotland awarded a grant to test and deliver a new 2-hour module to promote physical activity using a PL lens (in collaboration with sportscotland and education specialists)</li> </ul>	<ul style="list-style-type: none"> <li>- PL national workshop delivered in partnership with IPLA, Scottish Government and Public Health Scotland (2019)</li> <li>- PL included in the new National Physical Activity Referral Standards</li> <li>- PL was mentioned (IPLA definition) in: Convention of Scottish Local Authorities (COSLA), 2021. <i>The Positive Contribution of Physical Activity and Sport to Scotland</i></li> <li>- Several regions (in cooperation with IPLA and sportscotland) provide training for health care staff, clinical and leisure staff, early years practitioners, parents, and teacher students</li> <li>- No explicit reference to PL in National Curriculum</li> </ul>
<b>Spain</b>	<ul style="list-style-type: none"> <li>- Very recent topic with growing popularity</li> <li>- Few research projects in PL</li> <li>- First PL assessment tool in Spanish and use of existing PL tools (in the process of translation and validation)</li> <li>- First descriptive and correlational studies on PL and teacher education in PL were published</li> </ul>	<ul style="list-style-type: none"> <li>- No inclusion of PL in any educational curriculum</li> <li>- Physical education and sports organisations emphasized the importance of PL and motor literacy toward government administrations</li> <li>- Multimedia content and projects related to PL were disseminated by the COLEF Council</li> </ul>
<b>Sweden</b>	<ul style="list-style-type: none"> <li>- Lack of empirical PL research</li> <li>- Research activities are undertaken within the conceptualization of movement capability</li> <li>- National group of researchers applied funding for PL research projects</li> <li>- Links between the conceptualization of PL and aspects of sustainability (e.g., embodiment, lifelong learning) are explored in the school curriculum</li> </ul>	<ul style="list-style-type: none"> <li>- Municipalities and Sports Confederation and Special Sports Confederation adopt conceptualizations of PL and are engaged in projects</li> <li>- No explicit reference to PL in the national curriculum</li> <li>- The national curriculum is occupied by related concepts (e.g., lifelong learning, confidence in own physical ability)</li> </ul>

<b>Switzerland</b>	<ul style="list-style-type: none"> <li>- Lack of PL research, but research on the domains of PL (cognitive, physical, emotional, social) in the PE context</li> <li>- Some private schools are researching about PL and develop respective programs</li> <li>- Literacy is a motor of research and development in general (and especially the link between health literacy and physical activity)</li> </ul>	<ul style="list-style-type: none"> <li>- PL not explicitly quoted in national policy documents on physical activity promotion</li> <li>- No adoption of PL in political position statements</li> <li>- Revision of national curriculum documents is influenced by the debates on PL, but no explicit reference to PL</li> <li>- The domains of PL are seen in the curriculum</li> </ul>
<b>Türkiye</b>	<ul style="list-style-type: none"> <li>- Although two studies were conducted in 2012, the concept is recent with growing popularity in research</li> <li>- Pioneer research activities focused on the adaptation of PL measurements</li> <li>- Comparative study on PE and primary school teachers' PL perception was published (important for the K-12 system)</li> <li>- There are no NGOs or initiatives that have been created to support PL research</li> </ul>	<ul style="list-style-type: none"> <li>- No adoption of PL in political position statements at national and regional levels</li> <li>- Although there is no direct emphasis on the PL in K-12 PE curricula, the components of PL such as health and active lifestyles, life skills, and movement competency were mentioned</li> <li>- There are no NGOs or initiatives that support PL policy</li> </ul>
<b>Ukraine</b>	<ul style="list-style-type: none"> <li>- Very recent topic, only a few studies in this area</li> <li>- Comparisons of the PL term with existing national analogues to facilitate cultural adaptation</li> <li>- Using translations of existing tools, and the selection of culturally and contextually sensitive indicators for the creation of evaluation systems</li> </ul>	<ul style="list-style-type: none"> <li>- PL is missing in national-level documents</li> <li>- Interest to PL at the regional level</li> <li>- Implementation of a special course on PL for future teachers of physical education at Lviv State University of Physical Culture</li> <li>- Popularization of PL through public lectures for students and academic staff in the field of physical education and sport, in-service teacher training courses for physical education teachers</li> </ul>
<b>Wales</b>	<ul style="list-style-type: none"> <li>- PL research has mainly focused on the early years and primary school aged children</li> <li>- Research has focused on professional development programmes to enhance primary school teachers' knowledge and operationalisation of PL</li> </ul>	<ul style="list-style-type: none"> <li>- Legislative action has underlined the importance of physical activity and health behaviours in children and young people through the 'Well-being of Future Generations Act' (2015)</li> <li>- Schools and Physical Activity Task and Finish Group report (2013) was a key driver for the policy focus on PL</li> </ul>

	<ul style="list-style-type: none"> <li>- Further research adopted an appreciative inquiry between different sporting organisations to promote PL</li> <li>- Wales Academy for Health and Physical Literacy mainly focuses on developing children's motor skills in the Foundation Phase (3-7 year olds) to support PL</li> <li>- PL was implemented (especially physical domain) in Dragon Challenge and Sport Wales' School Sport Survey</li> </ul>	<ul style="list-style-type: none"> <li>- Sport Wales released educative materials (a PL video and 'a journey through life' illustration) and fully adopted the IPLA definition.</li> <li>- Sport Wales invested £1.78m in 2014 to develop the PL agenda through the 'Physical Literacy Programme for Schools' (2014-2017).</li> <li>- Sport Wales focused on PL in the community by employing PL consultants to work with National Governing Bodies (2018-present).</li> <li>- The Curriculum for Wales (2022) Health and Wellbeing Area of Learning and Experience has been informed by core principles of the PL concept, though no explicit reference to PL is in the Curriculum for Wales (2019)</li> </ul>
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**1 Authors' contributions**

2 Conceptualization: Johannes Carl & Peter Elsborg; Country-specific reviews and tables: All au-  
3 thors, except of the first and last author; Data curation: Johannes Carl; Formal analysis: Johannes  
4 Carl & Peter Elsborg; Funding acquisition (internal): Peter Bentsen; Investigation: Johannes Carl  
5 & Peter Elsborg; Methodology: Johannes Carl & Peter Elsborg; Project administration: Johannes  
6 Carl; Software: Johannes Carl & Peter Elsborg; Supervision: Johannes Carl, Nigel Green, Peter  
7 Bentsen, & Peter Elsborg; Revalidation: All authors; Visualization: Johannes Carl; Writing - orig-  
8 inal draft: Johannes Carl; Writing - review & editing: All authors.

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