



Universitat de Lleida

Document downloaded from:

<http://hdl.handle.net/10459.1/64912>

The final publication is available at:

<https://doi.org/10.1080/13573322.2012.713860>

Copyright

(c) Taylor & Francis, 2013

1 **Alternative Assessment in Physical Education: A Review of**
2 **International Literature**

3
4
5

6 **Abstract**

7 Assessment is one of the most fraught and troublesome issues physical educators have
8 had to deal with over the past forty years or so. In light of the challenges this situation
9 presents, in this paper we provide an overview of the international literature on
10 assessment in school physical education. We give an account of both traditional and
11 alternative forms of assessment, focusing in particular on recent approaches that may
12 be considered belong to the latter category of assessment. We found that traditional
13 assessment instruments such as Physical Fitness Tests and subjective assessment
14 criteria such as grading students' effort and clothing have been popular approaches to
15 assessment. We also found alternative assessment approaches now in use that have a
16 stronger educational focus. Thus, while we consider that this overview of research
17 studies provides evidence of genuine progress in an area that has been fraught with
18 difficulties for physical education as an educational endeavour, there is work to be
19 done to disseminate what we understand to be good assessment practices. In closing,
20 we briefly note some further challenges for research on assessment in physical
21 education.

22
23
24
25
26

Key-Words: Physical Education, Assessment, Assessment for learning, Alternative Assessment,
Authentic Assessment.

27 **Alternative Assessment in Physical Education: A Review of** 28 **International Literature**

29 30 **Introduction**

31
32 Assessment is one of the most fraught and troublesome issues physical educators have
33 had to deal with over the past forty years or so, in particular since examinable forms
34 of the subject first appeared in secondary schools during the 1970s in England and
35 Australia. In the case of Spain, the reform of education in 1970 was the starting point
36 for new guidelines for assessment in the Spanish system, promoting continuous and
37 participatory assessment. Reforms for assessment have continued since then (LOGSE,
38 1990; LOE, 2006). It was not until the early 1980s, and outside the formal
39 examinations system, that Ireland began to engage nationally with assessment in
40 physical education with the introduction of a project entitled 'Assessment in Second-
41 level Teaching' (Murphy, 1990). Prior to the 1970s, in many countries and for much
42 of the modern history of school physical education, assessment has not been an issue.
43 Back in the days when the majority of school children experienced a drilling and
44 exercising form of physical education, assessment, in so far as it existed, was
45 straightforward. The instructor could see clearly whether or not individual children
46 were executing the exercises correctly. One of the main goals of this form of physical
47 education was children's instant obedience to the word of command, a matter that was
48 rarely ambiguous.

49
50 When sport-based physical education began to emerge after World War Two as the
51 dominant form of the subject, assessment was once again a non-issue. Indeed, it was
52 considered obvious by physical education teachers who the talented performers were
53 simply by observing them play. This goal of excellence in sports performance was
54 rarely made explicit during the post-second world war decades, cloaked as it was in
55 the rhetoric of the 'whole child' borrowed from the briefly influential educational
56 gymnasts. Nevertheless it was this judgment about children's performance, alongside
57 them being 'busy, happy and good' (Placek, 1983), that mattered most to teachers.

58
59 During the late 1960s to the late 1980s in the USA, Britain and Australia, 'objective
60 testing' of children's motor skills and fitness was in vogue. But it did not take too long
61 for reflective teachers to recognize that the need for the scientific rigour of the tests
62 resulted in an ecological validity problem, whereby the tests failed to produce
63 information on what children might be learning in and through physical education.
64 The prevalence of 'objective testing' for children's motor skills and fitness as a form of
65 assessment is a reflection of a kind of physical education whose main goal is to train
66 students' physical abilities and performance according to what Tinning (1996) calls
67 'discourses of performance' in physical education and where López-Pastor (1999)
68 refers to physical education being influenced by a 'technical rationality'. It was partly
69 in response to the dominance of this testing and skill development form of physical
70 education that physical educators, such as Bunker and Thorpe (1982), alerted teachers
71 to the need for children to be able to play the game rather than merely perform
72 isolated, but easily testable, motor skills.

73
74 Assessment of 'theoretical' knowledge in physical education was carried out in
75 conventional fashion consistent with other more established subjects, i.e., by
76 examination, essay or multiple choice questions. Assessment of 'practical work' was

77 less easily carried out. Various practices emerged, including the use of motor skill and
78 fitness tests, tables of points awarded for performance in areas such as swimming and
79 athletics, and the 'subjective judgment' of the teacher on matters such as game
80 performance. These kinds of practices could be thought of as 'traditional' forms of
81 assessment linked especially to the use of physical fitness tests aimed at grading the
82 students' performance (López-Pastor, 1999, 2006).

83
84 The purpose of this paper is to provide an overview of the international literature on
85 assessment in school physical education. We take an international perspective because
86 we believe that there is more similarity than difference between assessment practices
87 around the world, and that we can learn from each others' experiences. A strong
88 relationship can be established between assessment and curriculum in physical
89 education. We provide a brief account of the methodology and design of the study.
90 We begin by providing an account of current and past approaches to assessment in
91 physical education, considering both traditional and alternative forms. We propose
92 that the fact that 'alternative assessment' is not in widespread use tells us something
93 about physical education's inability to change. We build on this section to provide a
94 conceptual framework for assessment and a potential assessment language for
95 physical educators. We consider examples of contemporary assessment and what they
96 tell us about what is valued in physical education today.

97 98 **Methodology and Design**

99
100 Descriptors used for the literature search were '*Assessment in physical education*' and
101 '*Evaluation in physical education*'. The search was conducted using different
102 information sources (e.g., Sport DISCUS) and informed by our respective experiences
103 with researching the topic of assessment in physical education. This resulted in a
104 systematic review of related papers, books and physical education related journals.

105
106 The authors reviewed literature in physical education assessment between 1988, the
107 year when assessment became more prominent in the physical education literature,
108 and 2011. The database comprised the results of book and journal searches that was,
109 in turn, systematically reviewed. After reading those documents, a category system
110 for classifying and analysing the data collected was designed, based on inductive
111 content analysis (Denzin, 1994; Huberman & Miles, 1994; Lincoln & Guba, 1985).
112 The two categories established were 'traditional' approaches to assessment in physical
113 education and 'alternative' approaches to assessment in physical education.

114 115 **Traditional and alternative approaches to assessment in physical education**

116
117 In this section we consider what we can learn from the literature identified as
118 contributing to discussion on traditional and alternative approaches to assessment in
119 physical education. We seek to provide a measured critique of traditional approaches
120 before moving on to consider perceived strengths and weaknesses of alternative
121 approaches. We use the terms 'traditional' and 'alternative' approaches to assessment
122 because they are the most frequently used terms in the physical education literature.
123 Furthermore, we utilize the term 'approaches' in order to refer to the broader types of
124 assessment in use (techniques, tools, strategies), not to the contents that are evaluated.
125 The contents of physical education are independent of the approaches to assessment.
126 Nevertheless, the approach to assessment reveals something of how physical

127 education is understood and practiced, contemplating physical education and the
128 different values and priorities when compared to traditional approaches.

129

130 ***Traditional forms of assessment: the case of Physical Fitness Tests***

131 In many countries, Physical Fitness Tests (PFTs) have been a popular form of
132 assessment in physical education (Hopple and Graham, 1995; López-Pastor, 2006).
133 According to Carroll (1994), up to the early 1990s, around 90% of physical education
134 teachers used PFTs in their programming. However, this use of PFTs has been widely
135 criticized in the research literature and students have reported that these tests often
136 result in a negative experience conveying little knowledge about their meaning and
137 application to real life.

138

139 The use of PFTs as means of assessment is a reflection of a physical education
140 understood as body training (training of students' performance) usually based in the
141 use of an objectives-based curriculum that attempts to apply a technical rationality to
142 physical education teaching. Such approaches have been criticized for not being
143 capable of generating deep and valid learning in physical education (Arnold, 1991;
144 Kirk, 1990; López-Pastor, 1999; Tinning, 1996).

145

146 Carroll (1994) gathered critiques of PFTs from the literature published in English,
147 especially from those authors referring to the strong influence of particular variables,
148 such as genetics, growth, motivation or skills. He also explained that PFTs may have
149 negative effects on motivation. He regarded them as adequate when used for
150 diagnostic purposes or within self-assessment processes, where students can observe
151 their own progress. This critique is consistent with López-Pastor (1999, 2006) who
152 has voiced similar concerns about the use of PFTs in Spain as a common grading
153 system in physical education. In the United States, Keating (2003) reviewed PFTs
154 applied in primary and secondary physical education. He listed ten main criticisms
155 and suggested possible solutions in implementing PFTs in physical education syllabi.
156 Solutions included (i) they should not be used for grading students, but for formative
157 and learning purposes, (ii) they should raise students' awareness of the tests and
158 include written tests on PFTs to assess such knowledge, (iii) there should be more
159 emphasis on health, and (v) tests should lead to improvements in students' physical
160 fitness.

161

162 Hopple and Graham (1995) argued that, despite many studies of PFTs, few had been
163 interested in students' views of such tests. The authors conducted a study of primary
164 education student perceptions of one particular component of PFTs, i.e., the 1-mile
165 run, taking into account the differences between those students who obtained high
166 grades and those who did not. Most students did not clearly understand the reason for
167 the test, while many did not like performing the test and found strategies for avoiding
168 it. Avoidance strategies were common to all students with low scores in the test, but
169 not exclusively, since some of the students with high scores displayed similar
170 reactions. Many students noted that they would have changed this test for another
171 form of assessment if given a choice. Hopple & Graham (1995) suggested that it may
172 be worthwhile exploring more relevant and appropriate health-related PFTs for
173 students to encourage young people to exercise more regularly.

174

175 Placek et al (2001) studied secondary physical education students' opinions on
176 physical fitness, favouring promoting the connection between physical fitness and

177 healthy lifestyles. The results showed that students' physical fitness knowledge was
178 minimal and that their performance in PFTs did not improve. Keating et al (2009)
179 confirmed poor knowledge about the purpose of PFTs among upper secondary school
180 students (16 to 18 year olds) pointing out that such results remain similar to those
181 found 20 years earlier. Keating et al (2009) argued that unless secondary students'
182 knowledge of the purpose of using PFTs improves, young people may not be in a
183 position to develop effective and meaningful active lifestyles.

184

185 Contemporary interest in health-related physical education programmes sometimes
186 has been confused with a revival of personal fitness testing (Devís and Peiro, 1992;
187 Halas and Gannon, 2006; Hoppo & Graham, 1995; Keating et al, 2009). We
188 understand that the development of health-related physical education should be linked
189 with the use of a more authentic assessment that addresses objectives such as
190 understanding the goals of each type of physical exercise, how to perform them
191 correctly, self-regulation, physical activity levels, behaviour change, engagement, and
192 students' responsibilities in the programmes. We can find in Spain different
193 experiences and proposals for both primary education (Fraile, 1996) and secondary
194 education (Devís and Peiro, 1992) that use formative and authentic assessment
195 strategies, which are more aligned with the educational purposes of physical
196 education.

197

198 Keating and Silverman's (2004) work on the validation of the Physical Education
199 Teacher Attitudes towards Fitness Tests Scale (PETAFTS) questioned the extent to
200 which PFTs are able to influence an increase in physical activity levels. Halas and
201 Gannon (2006) examined the principles involved in physical fitness development and
202 assessment implications, reviewing the PFTs' implementation in syllabi, mistakes
203 made, and consequences in terms of students' rejection of physical fitness activity.
204 They suggested that students should learn basic principles for working on their
205 physical fitness, to be in a position to understand what the PFTs measure and their
206 potential uses, as well as stressing the process of being active, so that physical fitness
207 assessment practices can be more appropriate and relevant educationally for the
208 students. Indeed, Jackson (2006) reported that there has been a progressive move from
209 PFT measuring fitnessperformance alone to health-related PFTs in recent years.

210

211 Some authors developed proposals to improve teaching and assessment of PFTs in
212 order to focus them more on the development of healthy lifestyles or on a better
213 understanding of their use and their potential for real-life situations. In her challenge
214 to neo-liberal practices in physical education, Macdonald (2011) argues that the
215 testing and reporting of 'objective' measures in physical education, such as fitness
216 tests or Body Mass Index (BMI), may run counter to the educative intent of the
217 subject. Nevertheless, more studies on the experimental development of such
218 proposals, and their appropriate dissemination, are required.

219

220 *Studies of other traditional assessment methods*

221 While PFTs provide an example of some of the major and shared shortcomings of
222 traditional assessment methods, researchers have studied other traditional assessment
223 methods in physical education. Veal (1988) conducted a study of 13 secondary
224 physical education teachers' assessment practices, identifying 90 assessment practices
225 in all. While the percentage of summative assessments (54%) dominated over
226 formative (30%) assessments, teachers tended to value effort and participation more

227 than performance and skills when grading. The outcomes revealed that teachers did
228 not usually assess as they had been encouraged to do during their pre-service teacher
229 training, as they believed such practices were not transferable to the reality of
230 teaching physical education in schools. Developing efficient, easy to use instruments
231 to measure and compile data on students' learning, and to train teachers for that
232 purpose, is a challenge to be addressed.

233

234 In another study, Matanin and Tannehill (1994) considered actual assessment
235 practices used in schools. Their findings showed there had been very few changes in
236 physical education assessment during the previous two and a half decades. The most
237 significant changes were that: (i) most teachers continued to identify grading with
238 PFTs performance and motor skills, (ii) achieving a passing grade in physical
239 education was easy for students, (iii) wearing appropriate clothing or participating
240 remained as grading criteria, (iv) the grading criteria most commonly used were
241 participation, knowledge and skill level, with other criteria including effort, attitude,
242 behaviour, and physical fitness. With regard to the time employed for assessment, it
243 varied from 10% of total time to as much as 80% in some cases. There was some
244 inconsistency between teachers' answers in written questionnaires and their actual
245 practice. Physical education teachers did not accept the idea of students' grades being
246 dependent on their physical fitness, with only 4% of teachers using physical fitness as
247 a grading criterion. Some teachers declared their preference for 'subjective'
248 assessment to decide students' grades, based mainly on criteria such as effort,
249 participation and behaviour. The authors criticized the lack of objectivity and
250 systematic approach, as well as the limited use of an official physical education
251 assessment.

252 *Alternative forms of assessment*

253 According to Siedentop and Tannehill (2000), 'alternative' assessments are those that
254 differ from the formal tools traditionally used in physical education, such as PFTs,
255 and instead involve students in actively solving realistic problems through application
256 of new information, prior knowledge, and relevant skills. In this section we will
257 review studies within this definition of alternative assessment, including research that
258 has used the following terminology associated with alternative assessment; authentic
259 assessment, assessment for learning, learning-oriented assessment, integrated
260 assessment, peer assessment and collaborative assessment. In the next section we will
261 return to consider this range of terms and their usefulness in developing a conceptual
262 framework and a language teachers and researchers could use for alternative forms of
263 assessment in school physical education.

264

265 Desrosiers, Genet-Volet and Godbout (1997) examined integrated assessment
266 development in a sample of 13 experienced physical education secondary teachers in
267 ten schools from Quebec (Canada). They observed 183 sessions throughout two
268 complete teaching units. The study reported that carrying out an integrated assessment
269 within the teaching-learning process is possible by employing different instruments
270 and involving the students in the process. A majority (71%) of instruments was used
271 to perform a diagnostic or formative assessment and 70% of instruments included
272 checklists and graduated scales applicable to every student. Taken together, these
273 instruments were employed for 77% of the time allocated to assess technical and
274 tactical skills. The assessment instruments used were consistent with learning
275 contexts, that is, they supported the notion of authentic assessment, including a move

276 away from a 'test culture' to an 'assessment culture'. Desrosiers, Genet-Volet and
277 Godbout (1997) extended their study with an action-research project where they
278 found a significant increase in teachers' use of authentic assessment techniques and
279 instruments. The teachers supported the use of authentic assessment in physical
280 education. They stated that it provided more relevance as a form of formative
281 assessment when integrated in the teaching-learning process and when information
282 about assessment was shared with the students.

283
284 A similar approach was developed in Spain in primary and secondary education
285 through an action-research group whose focus is 'Formative and Shared Assessment
286 in Physical Education' (López-Pastor, Manrique and Monjas, 2011). When such
287 assessment was implemented in the school, there was evidence of improvement in
288 learning, an increase of student involvement in the learning process, self-regulation,
289 high reliability of students' self-assessment and self-grading, high student satisfaction,
290 and better grades (López-Pastor, 1999, 2006). Furthermore, Lorente (2005, 2008) and
291 Lorente and Joven (2009) found similar results in a longitudinal case study on
292 pedagogical practice in physical education focused on autonomy and responsibility of
293 students for their own learning. In this student-centred model, the teacher negotiated
294 assessment with students at the beginning of the academic year and proposed self-
295 assessment and peer-assessment as reflective strategies for learning. In addition,
296 Pérez-Pueyo (2004) highlighted the importance of students' participation in the
297 assessment process for enhancing learning.

298
299 In the US, Mintah (2003) provided evidence that physical education teachers in public
300 schools were using authentic assessment . Seventy-five percent of teachers used
301 authentic assessment-related instruments, more commonly in primary than in
302 secondary education, and in the earlier years of secondary education than in later
303 years. For the minority of teachers who did not use authentic assessment, their main
304 reasons were that it required more time, it was not feasible in schools with higher
305 teacher workloads and less hours per week for physical education, and that teachers
306 were not sufficiently trained to carry out authentic assessment. Mintah (2003)
307 believed that authentic assessment values quality learning outcomes, encouraging
308 students to be further involved in the learning process, appreciating how they will be
309 assessed and in turn increasing their interest and motivation. While authentic
310 assessment generated a strong interconnection between teaching, assessment and
311 learning, teachers spent more time in planning, which for some physical education
312 teachers confirmed their perception that alternative assessment leads to an increase in
313 workload (Mintah, 2003).

314
315 Hopple (1995, 2005) examined the subject matter of alternative approaches to
316 assessment in a book focused on physical education teaching, physical education
317 standards and assessment practices for different learning contexts in the US. She
318 presented four tools for alternative assessment in physical education, (i) specific and
319 varied assessment tasks, (ii) explanations for performance and solutions, (iii) a
320 portfolio for collecting demonstrations of student learning, and (iv) observable
321 behaviours of skills and competences. Also in the US, Melograno (1998, 2000)
322 suggested that the portfolio is a useful and appropriate instrument for compiling
323 evidence on student learning in alternative assessment systems. He proposed eight
324 steps to be followed and offered very detailed information on the different uses of
325 each of them. He regarded the portfolio as advantageous when employing naturalistic

326 and authentic assessment. In previous work, Melograno (1997) supported the
327 necessity for carrying out integrated assessment tasks using self and peer-assessment
328 techniques, as well as the portfolio.

329

330 Some research has focused on peer-assessment. For example, Butler and Hodge
331 (2001), working in the US, found that advantages of peer-assessment over traditional
332 approaches included more feedback, an improvement in learning, more sociability,
333 and more positive relationships among classmates. Melograno (1997) found similar
334 outcomes. Butler and Hodge (2001) offered two key directives for those teachers
335 interested in peer-assessment. Firstly, to give necessary instruction before beginning
336 the classes and, secondly, to inform students what they are expected to do in terms of
337 how to carry out the peer-assessment. Hill and Miller (1997) found a high correlation
338 between peer-assessment and teacher assessment of students' physical fitness testing.
339 Ward and Lee (2005) reviewed research on the use of peer-assessment in physical
340 education. They found four publications where peer-assessment was part of a tutoring
341 project by physical education peers, two using peer-assessment for PFTs and a further
342 two on using peer-assessment for teaching sports. Analyses carried out in some of
343 these studies obtained strong correlations for secondary students when they had been
344 properly trained in assessment protocols. The degree of reliability between those
345 students performing peer-assessment and the researchers' assessments varied from
346 70% to 96%.

347

348 Chen (2005) conducted a study with 15 primary school physical education teachers on
349 their compliance with national standards in assessing practices within the US. He
350 found only five teachers using integrated and authentic assessment, including mainly
351 peer-assessment techniques and descriptive scales. In Australia, Hay (2006) carried
352 out a study focussing on assessment for learning as a new paradigm of assessment. He
353 explained its origins, pedagogical bases, purposes, core concepts, and reviewed the
354 practical applications developed, as well as connections with other curriculum and
355 instructional models and approaches (e.g., Sport Education, Games Based). Similarly,
356 in an earlier Australian study, Alexander and Luckman (2001) considered how the
357 Sport Education model provided assessment opportunities (i.e., authentic tasks,
358 teacher time to make assessment judgements) that were well received by both teachers
359 and students. In the UK, Casbon and Spackman (2005) undertook an assessment for
360 learning in physical education study and developed an assessment resource with
361 specific examples of how to implement it throughout each compulsory education
362 cycle as well as in different learning contexts. They produced videos of specific
363 educational practices filmed in 13 case studies and performed as part of specific
364 teaching units.

365

366 There are a number of publications that show the use of video as an assessment
367 instrument. Van Vuuren-Cassar & Lamprianou (2006) carried out a study of
368 summative assessment of students' learning in an athletics unit in a secondary school
369 in Malta. The summative assessment included written exams and exams based on
370 answering questions in response to reviewing a video of the unit. A better
371 performance in the video-based exam was evident between the group who worked
372 with video (and computer supported training) than the group that did not. In another
373 study, Cassady, Clarke and Latham (2004) assessed feelings among secondary
374 students, about assessing and being assessed, when they undertook a self and peer-
375 assessment system in a dance unit. They used video viewing techniques, self-

376 assessment, peer-assessment, a questionnaire and surveys. The students agreed that
377 the assessment system helped them to improve and that more frequent video viewing
378 might be beneficial for enhanced learning. Moreover, they regarded peer-assessment
379 as a positive tool for considering other ideas, improving their skill execution, and
380 enabling comparisons of their performances. However, the students noted two
381 difficulties associated with peer assessment. Firstly, they found difficulty in assessing
382 classmates' work accurately and providing feedback without offending them and,
383 secondly, they reported negative feelings towards assessing other classmates and
384 being assessed by them. The authors considered that it would be interesting to
385 generate an assessment system that was confidential and valid.

386
387 The question of valid judgements has driven much of the work of Hay and his
388 collaborators in Australia and Sweden (Hay & Macdonald, 2009; Redelius & Hay,
389 2009). Hay's original research was with senior secondary classes undertaking a
390 university-entrance version of physical education that involved both theoretical and
391 practical assessment tasks. For some thirty years, this senior high school physical
392 education subject in Australia has required the implementation of authentic tasks,
393 frequently involving a combination of assessment of theory and performance as well
394 as using technologies such as video footage, all of which contribute to a student's
395 portfolio. As first explained by Macdonald and Brooker (1997), these portfolios of
396 written and performance task responses are submitted for extensive moderation
397 amongst the school's staff and with peers from other Queensland schools in a bid for
398 state-wide comparable judgements. Using qualitative techniques and drawing upon
399 the work of both Bernstein and Bourdieu, Hay and his colleagues' research program
400 has revealed the social construction of ability (Evans, 2004; Hay & Macdonald,
401 2009), whereby teacher judgements and expectations for success vary according to the
402 socio-economic status of the school (Hay, 2010) and the sex of the students (Hay &
403 Macdonald, 2010). More specifically, it seems that despite having criteria and
404 standards outlined in a curriculum document upon which to base judgements of
405 students' physical performances, teachers awarded student grades mediated by
406 subjective perceptions of the student such as their effort, sex, general athletic ability,
407 socio-economic status, and look. Echoing the themes of this Australian programme of
408 research, students' perceptions about the purposes, practices and consequences of
409 summative assessment have also been studied in the Swedish context (Redelius &
410 Hay, 2009), and with younger Australian students highlighting the slippage between
411 the official assessment discourse and school practices (Chan, Hay & Tinning, 2011).

412
413

414 *Summary*

415 This overview of research on both traditional and alternative assessment in physical
416 education shows that assessment in physical education has focused on several non-
417 educative approaches such as PFTs and student characteristics such as effort. At the
418 same time, it appears that for some 30 years alternative ways of assessing in physical
419 education that have supported an educative focus have emerged. Building on this
420 overview, we now consider whether these alternative forms of assessment provide the
421 basis for a conceptual framework for thinking about assessment in physical education.

422

423 **A conceptual framework for assessment**

424

425 Most of the literature on assessment in physical education from Spain refers to the
426 traditional concepts of formative and summative assessment (Blázquez, 1990;
427 Hernández and Velázquez, 2004; López-Pastor, 2006). However, new approaches to
428 assessment in physical education considered interesting from a pedagogical point of
429 view can be found in international literature over the last 30 years: alternative
430 assessment, authentic assessment, formative assessment, assessment for learning,
431 integrated assessment. These terms provide interesting nuances of meaning, although
432 the terms tend to be collectively referred to under the heading of 'formative
433 assessment'. The common interest between these relatively new approaches to
434 assessment in physical education is to interrogate the teaching-learning processes and
435 create enhanced learning for students, and by association explore a different way of
436 understanding and performing educational assessment, moving the focus from
437 assessment based on teaching towards assessment based on the students' learning.
438 Table 1 provides a summary of these concepts and their definitions, as well as authors
439 who have explored their use.

440

441 INSERT TABLE 1 HERE

442

443 There are similarities between the definitions of each type of assessment noted in
444 Table 1 and it is to the differentiating nuances that we now turn our attention.

445

446 Brockbank and McGill (1999) explained that the literal translation of the Latin for
447 'assessment' is 'sitting by', conveying the sense of helping or cooperating, instead of
448 inspection and control commonly used to understand and perform assessment. The
449 concept of alternative assessment is still being debated. Mintah (2003) explained that
450 Herman, Aschbacher and Winters (1992) regarded authentic assessment and
451 alternative assessment as synonyms and considered the concepts to be different. Hay
452 (2006) regarded those concepts as similar, along with formative assessment, educative
453 assessment and performance assessment.

454

455 The concept of authentic assessment is used to counteract artificial assessment
456 situations, which do not reflect real-life practice or implementation of knowledge.
457 According to Desrosiers, Genet-Volet and Godbout (1997) authentic assessment has
458 three typical features: (1) it is integrated within the teaching-learning process, (2) the
459 assessment procedure is shared with the students, and (3) shared assessment attaches
460 most importance to formative assessment. These features are also evident in the work
461 of López-Pastor et al (2006). Zhu (2007) comments on how authentic assessment was
462 developed from the work of Wiggins (1993), focusing on the assessment of learning
463 applicable to real life. It not only qualified what knowledge was acquired, but also
464 how this was understood and used in real-life situations. According to Richard and
465 Godbout (2000), the essential point for authentic assessment resides in regular and
466 systemic use of formative assessment for the teaching-learning process. Mintah
467 (2003) argued that authentic assessment generates a greater interconnection among
468 teaching, assessment and learning. Desrosiers, Genet-Volet and Godbout (1997) also
469 believed that authentic assessment values both the learning process and outcome and
470 provides a chance to share the responsibility of assessment with the students.

471

472 Australia and New Zealand physical education curricula have a history of strong
473 educative foci where students are assessed on their theoretical knowledge of the
474 socio-cultural and bio-physical sciences that inform physical education as well as the

475 students' capacity to demonstrate intellectual performance. This has generated a line
476 of scholarship in physical education that has attempted to outline what constitutes
477 quality assessment in physical education (Macdonald & Brooker, 1997), and drawson
478 Bernstein's work to provide a theoretical framework whereby assessment is one of
479 three message systems of schooling, i.e., curriculum, pedagogy and assessment (see,
480 for example, Penney et al, 2009). Hay and Penney (2009) have argued that assessment
481 efficacy is enhanced through a focus on assessment for learning, authentic tasks, valid
482 judgments and social justice principles.

483
484 Desrosiers, Genet-Volet and Godbout (1997) considered that integrated assessment is
485 closely connected with authentic assessment, so much so that authentic assessment is
486 one of the key features of integrated assessment. Their conclusions highlighted the
487 importance of moving away from a test culture to an assessment culture. 'Test
488 culture' refers to teachers' preference to use tests for rating/grading knowledge and
489 skills required by the school, school district, or central government. In such instances
490 this primarily results in summative assessment. 'Assessment culture' refers to
491 teachers' concern for a greater focus on formative assessment, where assessment is a
492 means to help students learn. Thus, alternative assessment does not exclude
493 summative assessment, but rather emphasises student learning as a process rather than
494 solely relying on grades or marks as products / outcomes.

495
496 Melograno (1997) also supported the need for integrating assessment within physical
497 education and the close connection this type of assessment has with authentic
498 assessment, the use of the portfolio and the students' involvement in the process by
499 self-assessment and peer-assessment techniques. Richard and Godbout (2000)
500 supported carrying out formative assessment as an integral part in the teaching-
501 learning process and developed a series of pedagogic principles for quality authentic
502 assessments. Assessment for learning is regarded as a very specific manifestation of
503 formative assessment, since it exclusively focuses on the student learning, improves
504 teaching and the teaching-learning process, and emphasizes the assessment purpose as
505 the improvement of the learning process and, by association, student learning.

506
507 While there appears to be a proliferation of terms to describe forms of alternative
508 assessment in physical education, we suggest there is much consistency between these
509 terms in relation to the values and purposes that inform their use. Some terms, such as
510 assessment for learning, suggest a very specific focus on the use of feedback for
511 learning progression, while others such as authentic assessment clearly highlights the
512 meaningfulness of the assessment task for students rather than on grades. These terms
513 provide us with the beginnings of a shared language that teachers, students and
514 researchers can use to describe in nuanced detail how alternative forms of assessment
515 might be used to the benefit of learners. In the next section, we consider how such
516 forms of alternative assessment have tended to be utilised, thus far, in pedagogical
517 practice in physical education.

518 519 **Alternative assessment in physical education pedagogical practice**

520
521 Concepts of alternative assessment tend, in pedagogical practice, to be closely
522 associated. One particular example from Ireland is provided in a study conducted by
523 MacPhail & Halbert (2010). A physical education assessment-planning framework
524 was generated with various assessment instruments deemed to be authentic

525 assessments for use by teachers and students in association with a physical education
526 syllabus. The work of the project focused on engaging a number of teachers in the
527 development of assessment materials, the trial of these in school settings and their
528 subsequent refinement based on the feedback received from the teaching and learning
529 setting. The project required physical education teachers to cultivate a learning culture
530 within the class, focusing on assessment for learning strategies, in particular the
531 impact of formative assessment on student learning. The study developed and
532 promoted the use of 'rich tasks' (Luke, 1999; Moynihan, Murphy & O'Flaherty,
533 2006), in this instance defined as integrated learning experiences that represent
534 learning outcomes in a practical environment. Rich tasks contribute to authentic
535 assessment in physical education through being embedded in movement, hoping to
536 'capture the cognitive and psychomotor processes involved in the competent
537 performance of physical activities' (Hay, 2006, 317).

538
539 A formative assessment instrument (the 'assessment wheel') related to the rich task,
540 supported a constructivist perspective in which students take increasing responsibility
541 for what is learned and how it is represented (MacPhail & Halbert, 2010). The
542 assessment wheel is a simple form of student self-assessment, encouraging the student
543 to record, reflect on, and map their learning related to the rich task and to assess their
544 progress towards a pre-set goal. It also identifies any learning gaps that may exist and
545 enables students to plan for the next phase of their learning as well as providing a
546 context for feedback. The study reported that a number of favourable comments were
547 made related to the use of the assessment for learning methodology and the related
548 assessment wheel, with teachers and students conveying a shared understanding of the
549 nature and purpose of both. Both teachers and students believed that the quality of
550 student learning in physical education had improved. Students appreciated being
551 given more responsibility for their own learning and teachers believed that the use of
552 questioning and feedback increased the number of students positively engaged in the
553 physical education class. The rich task helped contextualize the learning intentions for
554 the unit of work and alerted students to what they were expected to do on completion
555 of the unit. MacPhail & Halbert (2010) concluded that it is imperative that continual
556 evolution and refinement of assessment frameworks and instruments for physical
557 education within schools are informed by the experiences of teachers and students and
558 the evaluation of such experiences.

559
560 Oslin, Mitchell and Griffin (1998) developed the Game Performance Assessment
561 Instrument (GPAI) for assessing learning in games. They developed a protocol to
562 assess seven tactical problems in any type of game category. Those tactical problems
563 include understanding tactics, capacity to solve tactical problems, and capacity to
564 choose the right skill for each game situation. The findings suggested that GPAI is a
565 valid and reliable method to assess individual learning in team games. The authors
566 regarded this method as an alternative to sport skill tests, since it is consistent with
567 learning contexts and understanding team games and is thus an authentic and
568 integrated assessment instrument. Memmert and Harvey (2008) carried out a review
569 and found five problems related to the GPAI scoring and coding system: (1)
570 calculation of individual and overall game performance indexes, (2) use of game
571 involvement versus game performance index to analyze game performance, (3)
572 observer reliability, (4) non-linearity, and (5) usefulness of action. They proposed a
573 re-examination of the GPAI scoring and coding system that could lead to the more
574 efficient use of this instrument.

575

576 Gréhaigne, Godbout and Bouthier (1997) developed an instrument (Team Sport
577 Assessment Procedure - TSAP) to assess individual results in team sports for use as
578 initial and formative assessment, and within the authentic assessment model in which
579 the students actively participate in the assessment process. They included details of
580 the instrument such as validity and reliability indexes, as well as its environmental
581 validity. The experimental stage in developing the instrument was with secondary
582 students (aged 13-14 years). The authors regarded the model as an integrated
583 assessment instrument on the basis of two principles, (a) environmental validity due
584 to the instrument not altering the normal operation of the learning process, and (b) the
585 students' active participation due to the instrument being applied as a peer-
586 assessment. The results reported the TSAP as an adequate assessment procedure for
587 learning to play sports. This instrument is specifically designed for initial and
588 formative education within sport education units. As students are responsible for
589 applying the instrument by peer-assessment techniques, it is highly important for them
590 to have prior understanding of how to use the checklists properly. This way,
591 assessment becomes a learning activity for both observers and players, since the
592 results are reflected in the checklist and students are led to think about their
593 weaknesses and how to improve them in future game situations. The authors
594 highlighted this as an authentic, formative and integrated assessment instrument for
595 individually assessing learning in team sports, and encouraging students to be active
596 participants in the assessment process. In a subsequent article, Richard, Godbout,
597 Tousignant and Gréhaigne (1999) developed this system as a means for integrated
598 assessment in primary and secondary school sport, as well as for the Teaching Games
599 for Understanding (TGfU) model. Méndez (2005) adjusted the GPAI to the Spanish
600 context and reported results when implementing it in physical education classes in a
601 secondary school.

602

603 To conclude, this section reported that some progress has been made school physical
604 education with use of a greater range of forms of alternative assessment. In practice,
605 particularly in the use of pedagogical models such as TGfU and Sport Education, the
606 various types of alternative assessment tend to be utilised in a complimentary fashion,
607 suggesting that similar educational purposes and values lie behind the different
608 terminology used. In the final section of this paper, we consider new directions for
609 research on assessment in school physical education.

610

611 **New directions for research on assessment**

612

613 There are certain dimensions of physical education (motor skill, fitness, team games)
614 that appear to be assessed more often than others. It is important to take into account
615 that the current focus on assessment may create challenges in terms of pedagogy in
616 physical education. As Fullan (1991) pointed out, to make an important change in the
617 assessment system can generate broader changes in the curriculum and in pedagogy
618 more broadly. We encourage thoughtful reflection as to how changes in assessment
619 need to be aligned with choices of curricular content, pedagogical decisions and what
620 are viewed as the overall learning objectives in the teaching learning task/experience.

621

622 On the basis of this review of literature on assessment in physical education, we pose
623 a brief list of issues and questions that might signal some future directions for
624 research:

- 625 • Future research needs to continue to monitor the extent to which assessment
626 has become a regular, integral, widespread and productive (in terms of
627 facilitating student learning) feature of physical education teaching;
- 628 • While advocacies for alternative forms of assessment are often passionate, we
629 need to subject these approaches to critical scrutiny and ask whether they are
630 successful or not in achieving their stated aspirations;
- 631 • We might ask, what are the barriers to teachers using these innovative ideas in
632 their practice? Moreover, what kinds of support or advice do physical
633 education teachers need to develop educationally sound, successful and
634 sustainable forms of assessment?;
- 635 • Where alternative approaches to assessment have worked, we need to know
636 what are the key points of its success?;
- 637 • We need further studies on the forms alternative assessment takes in physical
638 education pedagogical practice, and to note in particular any adaptations made
639 in the process of implementation, between conception and practice;
- 640 • What should be valued in physical education, now and into the future, and
641 therefore what should be assessed and reported. If performances of physical
642 skills or fitness are valued, then it is important to acknowledge that these are
643 most likely to be measured. With global concerns, real or otherwise, for
644 children's healthy body weight and fitness and global, online assessment tools
645 available to measures these variables, it may be that PFTs experience a
646 (re)surgence as legitimate assessment practices in physical education. If,
647 however, students' *learning* is valued, then understanding what they know and
648 can do in relation to their induction into a movement culture would drive
649 assessment;
- 650 • We must acknowledge that what has been termed 'alternative' assessment is
651 complex and requires teachers who have the time, resources, and expertise to
652 construct worthwhile tasks, embed those tasks into the teaching and learning
653 process, and implement them in valid and equitable ways. It is useful to recall
654 the inter-relationship of Bernstein's three message systems – curriculum,
655 pedagogy and assessment (Penney et al, 2009). Assessment needs to be
656 integral to, and consistent with, what gets taught and how it gets taught and
657 future research should acknowledge this in its questions and methodologies.

658 **Conclusion**

659
660 Our purpose in this paper was to provide an overview of the international literature on
661 assessment in school physical education in order to familiarize researchers with the
662 range of studies conducted on this topic. We did this first by providing an account of
663 both traditional and alternative forms of assessment. We highlighted the traditional
664 popularity of non-educational tools such as PFTs and subjective criteria including
665 effort and uniforms, before introducing a proliferation of more recent approaches
666 gathered under the umbrella term of 'alternative' forms of assessment. We then
667 sought to overview the alternative approaches in order to provide a conceptual
668 framework for assessment and a language for alternative assessment for physical
669 educators. While we found a range of concepts in use, we proposed that each served

670 to highlight specific aspects of the pedagogy (teaching, learning, and curriculum) of
671 physical education, and that they were underpinned by a similar perspective on the
672 purposes of assessment and its educational value. We then sought to consider some
673 examples of alternative forms of assessment within pedagogical practice, noting
674 advances within the context of curriculum and instructional models in particular, and
675 in the integrated use of two or more forms of alternative assessment. Building on this
676 overview, we briefly noted some possible new directions for research on alternative
677 assessment in physical education.

678

679 While we consider that this overview of research studies provides evidence of genuine
680 progress in an area that has been fraught with difficulties for physical educators, both
681 conceptual and practical, we are not complacent about the place of assessment in
682 school physical education. The research on alternative forms of assessment we refer
683 to in this paper represents an emerging field of innovative practice. This literature
684 suggests that such innovative practice is, however, far from regular, integral,
685 widespread and educationally productive. We believe assessment is an integral and
686 necessary aspect of education across all subject areas of the school curriculum, and
687 physical educators can no longer afford to be ambivalent about this practice, if they
688 ever were. The overview contained in this paper, we suggest, at least provides a
689 perspective on what may be possible and desirable for assessment in physical
690 education.

691

692

693 **Authors**

694

695 Víctor M. López-Pastor is a Senior Lecturer in the E.U. Magisterio of Segovia, at the
696 University of Valladolid, Spain.

697

698 Ann MacPhail is a Senior Lecturer in the Department of Physical Education and Sport
699 Sciences at the University of Limerick, Ireland.

700

701 David Kirk is Alexander Chair in Physical Education and Sport at the University of
702 Bedfordshire, UK

703

704 Doune Macdonald, School of Human Movement Studies, The University of
705 Queensland, Brisbane, Australia.

706

707 Eloisa Lorente is a Senior Lecturer in the National Institute of Physical Education of
708 Catalonia (INEFC) at the University of Lleida (Spain)

709

710 **References**

711

712 Alexander, K. & Luckman, J. (2001) Australian teachers' perceptions and uses of the
713 sport education curriculum model, *European Physical Education Review*, 7(3),
714 243–267.

715 Arnold, P. J. (1991). *Educación Física, movimiento y currículum*. Madrid, Morata-
716 MEC.

717 Blázquez, D. (1990) *Evaluar en Educación Física* (Barcelona, Inde).

- 718 Brockbank, A. & McGill, I. (1999) *Facilitating Reflective Learning in Higher*
719 *Education* (Buckingham, Open University Press).
- 720 Butler, S. A., & Hodge, S. R. (2001). Enhancing student trust through peer-assessment
721 in Physical Education. *The Physical Educator*, 58(1), 30-39.
- 722 Carroll, B. (1994) *Assessment in Physical Education. Attacher's guide to the Issues*
723 (London, Falmer Press).
- 724 Casbon, C.; Spackman, L. S. (2005) *Assessment for learning in Physical Education*
725 (Leeds, BAALPE).
- 726 Cassady, H., Clarke, G., Latham, A-M. (2004) Experiencing evaluation: a case study
727 of girls' dance, *Physical Education and Sport Pedagogy*, 9(1), 23-36.
- 728 Chen, W. (2005) Examination of curricula, teaching practices, and assessment
729 through National Standards, *Physical Education and Sport Pedagogy*, 10(2),
730 159-180.
- 731 Chan, K., Hay, P. & Tinning, R. (2011) Understanding the pedagogic discourse of
732 assessment in physical education, *Asia-Pacific Journal of Health, Sport and*
733 *Physical Education*, 2(1), 3-18.
- 734 Denzin, N. K. (1994) The art and politics of interpretation, in: N. K. Denzin & Y. S.
735 Lincoln (Eds) *Handbook of qualitative research* (Thousand Oaks, Sage), 500-
736 515.
- 737 Desrosiers, P., Genet-Volet, Y. & Godbout, P. (1997) Teachers' Assessment Practices
738 Viewed Through the Instruments Used in Physical Education Classes, *Journal*
739 *of Teaching in Physical Education*, 16(2), 211-228.
- 740 Devís, J. & Peiró, C. (1992). *Nuevas perspectivas curriculares en Educación Física:*
741 *la salud y los juegos modificados*. Barcelona. Inde.
- 742 Evans, J. (2004) Making a difference? Education and 'ability' in physical education,
743 *European Physical Education Review*, 10, 95-108.
- 744 Fraile, A. (coord.) (1996). *Actividad física y salud en la Escuela*. Valladolid. Junta de
745 Castilla y León.
- 746 Fullan, M. (1991). *The New Meaning of Educational Change*. Cassell. Londres.
- 747 Grehaigne, J-F., Godbout, P. & Bouthier, D. (1997) Performance assessment in team
748 sports, *Journal of Teaching in Physical Education*, 16, 500-516.
- 749 Halas, J. & Gannon, G. (2006) The Challenges of Teaching Fitness in an Era of
750 Physical Inactivity: Examples of Effective Practice, *Physical and Health*
751 *Education Journal*, 72(1), 4-9.
- 752 Hay, P. J. (2006) Assessment for learning in Physical Education. In: D. Kirk, D.
753 MacDonald & M. O'Sullivan (Eds) *The handbook of Physical Education*
754 (London, Sage), 312-325.
- 755 Hay, P. (2010) Systemic inequities in a school-based approach to curriculum and
756 assessment through the eyes of students, *Curriculum Perspectives*, 30(1), 14-24.
- 757 Hay, P. & Macdonald, D. (2009) Evidence for the social construction of ability in
758 physical education, *Sport, Education and Society*, 15(1), 1-18.
- 759 Hay, P. & Macdonald, D. (2010) The gendering of abilities in Senior PE, *Physical*
760 *Education & Sport Pedagogy*, 15(3) 271-285.
- 761 Hay, P. & Penney, D. (2009) Proposing conditions for assessment efficacy in physical
762 education, *European Physical Education Review*, 15(3), 389-405.
- 763 Hensley, L. (1997) Alternative assessment for physical education, *Journal of Physical*
764 *Education, Recreation and Dance*, 68(7), 19-24.
- 765 Herman, J. L., Aschbacher, P. R., & Winters, L. A. (1992) *Practical Guide to*
766 *Alternative Assessment* (Alexandria, Association for Supervision and
767 Curriculum Development).

- 768 Hernández, J. L. & Velázquez, R. (Eds) (2004) *La evaluación en educación física.*
769 *Investigación y práctica en el ámbito escolar* (Barcelona, Graó).
- 770 Hill, C. & Miller, T. (1997) A Comparison of Peer and Teacher Assessment of
771 Students' Physical Fitness Performance, *Physical Educator*, 54(1), 40-46.
- 772 Hopple, C. J. (2005) *Elementary Physical Education Teaching and Assessment. A*
773 *practical guide.* (Champaign, Human Kinetics) (1^a ed, 1995).
- 774 Hopple, L. & Graham, G. (1995). What children think, feel and know about Physical
775 Fitness testing, *Journal of Teaching in Physical Education*, 14(4), 408-417.
- 776 Huberman, A. M. & Miles M. B. (1994) Data management and analysis methods, in:
777 N. K. Denzin & Y. S. Lincoln (Eds) *Handbook of qualitative research*
778 (Thousand Oaks, Sage), 428-444.
- 779 Jackson, A.S. (2006) The Evolution and Validity of Health-Related Fitness, *Quest*,
780 58(1), 160-175.
- 781 Keating, X. D. (2003) The Current Often Implemented Fitness Tests in Physical
782 Education Programs: Problems and Future Directions, *Quest*, 55(2), 141-160.
- 783 Keating, X. D. & Silverman, S. (2004) Physical Education Teacher Attitudes Toward
784 Fitness Scale: Development and Validation, *Journal of Teaching in Physical*
785 *Education*, 23 (2), 143-161.
- 786 Keating, X. D. & Silverman, S. (2004) Teachers' Use of Fitness Tests in School-
787 Based Physical Education Programs, *Measurement in Physical Education and*
788 *Exercise Science*, 8(3), 145-165.
- 789 Keating, X., Harrinson, L., Chen, L., Xiang, P., Lambdia, D., Davenport, B. et al.
790 (2009) An Analysis of research on Student health-related Fitness Knowledge in
791 K-16 programs. *Journal of Teaching in Physical Education*, 28 (3), 333-349.
- 792 Kirk, D. (1990). *Educación Física y Currículum.* Valencia. Universidad de Valencia.
- 793 Kirk, D., & O'Flaherty, M. (2004) *Learning theory and authentic assessment in*
794 *Physical Education.* Paper presented at the Physical and Sport Education SIG,
795 Annual Conference of BERA.
- 796 Lincoln, Y. S. & Guba, E. G. (1985) *Naturalistic inquiry* (Neubury Park, Sage).
- 797 López Pastor, V.M. (1999) *Prácticas de Evaluación en Educación Física: estudio de*
798 *casos en primaria, secundaria y formación del profesorado* (Valladolid,
799 Universidad de Valladolid).
- 800 López Pastor, V. M. (Ed) (2006) *La Evaluación en Educación Física: Revisión de los*
801 *modelos tradicionales y planteamiento de una alternativa: La evaluación*
802 *formativa y compartida* (Buenos Aires, Miño y Dávila).
- 803 López-Pastor, V. M., Monjas, R., Manrique, J. C. (2011) Fifteen years of action-
804 research as professional development. Searching more collaborative, useful and
805 democratic systems for teachers, *Educational Action-Research*, 19(2), 153-170.
- 806 Lorente, E. (2005) *Autogestión en Educación Física. Un estudio de caso en*
807 *Secundaria (Self-management in Physical Education. A case study in Secondary*
808 *School)* (Barcelona, Universidad de Barcelona).
- 809 Lorente, E. (2008) Estimular la Responsabilidad y la Iniciativa: Autogestión en
810 Educación Física (Stimulating Responsibility and Initiative: Self-management
811 in Physical Education), *Apunts Educació física i esport*, 92, 26-34.
- 812 Lorente, E. & Joven, A. (2009) Autogestión: Una investigación Etnográfica (Self-
813 management: a Ethnographic Research), *Cultura & Educación*, 21, 67-69.
- 814 Luke, A. (1999) Education 2010 and new times: Why equity and social justice still
815 matter, but differently. Paper prepared for *Education Queensland online*
816 *conference*, October 20.

- 817 Macdonald, D. (2011) Like a fish in water: Physical Education policy and practice in
818 the era of neoliberal globalization, *Quest*, 63, 36-45.
- 819 Macdonald, D. & Brooker, R. (1997) Moving beyond the crisis in secondary physical
820 education: An Australian initiative, *Journal of Teaching in Physical Education*,
821 16(2), 155-175.
- 822 MacPhail, A. & Halbert, J. (2010) We had to do intelligent thinking during recent
823 PE': Students' and teachers' experiences of assessment for learning in post-
824 primary physical education, *Assessment in Education*, 17(1), 23-39.
- 825 Matanin, M. & Tannehill, D. (1994) Assessment and grading in Physical Education,
826 *Journal of Teaching in Physical Education*, 13(4), 395-405.
- 827 Melograno, V. J. (1997) Integrating assessment into Physical Education teaching,
828 *Journal of Physical Education, Recreation, and Dance*, 68(7), 34-37.
- 829 Melograno, V. J. (1998) *Professional and student Portfolio for Physical Education*
830 (Champaign, Human Kinetics).
- 831 Melograno, V. J. (2000) Designing a Portfolio System for K-12 Physical Education: A
832 Step-by-Step Process, *Measurement in Physical Education and Exercise*
833 *Science*, 4(2), 97-115.
- 834 Memmert, D., & Harvey, S. (2008) The Game Performance Assessment Instrument
835 (GPAI), *Journal of Teaching in Physical Education*, 27(2), 220-240.
- 836 Méndez Gimenez, A. (2005) Hacia una evaluación de los aprendizajes consecuente
837 con los modelos alternativos de iniciación deportiva, *Tandem*, 17, 38-58.
- 838 Mintah, J. K. (2003) Authentic Assessment in Physical Education: Prevalence of Use
839 and Perceived Impact on Students' Self-Concept, Motivation, and Skill
840 Achievement, *Measurement in physical education and exercise science*, 7(3),
841 161-174.
- 842 Moynihan, C., Murphy, G. & O'Flaherty, M. (2006) Future designs – planning for a
843 quality physical education experience. Paper presented at *British Educational*
844 *Research Association*, September 6–9, University of Warwick, UK.
- 845 Oslin, J. L., Mitchell, S. A. & Griffin, L. L. (1998). The game performance
846 assessment instrument (GAPI): development and preliminary validation,
847 *Journal of Teaching in Physical Education*, 17 (2), 231–243.
- 848 Penney, D., Brooker, R., Hay, P. & Gillespie, L. (2009) Curriculum, pedagogy and
849 assessment: Three message systems of schooling and dimensions of quality
850 physical education, *Sport, Education and Society*, 14(4), 421-442.
- 851 Placek, J. (1983). Conceptions of success in teaching: Busy, happy and good. In: T.
852 Templein & J. Olson (eds): *Teaching physical education* (Champaign. Human
853 Kinetics).
- 854 Placek, Jh.; Griffin, Ll.; Dodds, P.; Raymond, C.; Tremino, F & James, A. (2001)
855 Middle School Students' Conceptions of Fitness: the long road to a Healthy
856 Lifestyle, *Journal of Teaching in Physical Education*, 20(4), 314-323.
- 857 Perez-Pueyo, A (2004) *Estudio del planteamiento actitudinal del área de educación*
858 *física de la educación secundaria obligatoria en la LOGSE*. (León, Universidad
859 de León).
- 860 Redelius, K. & Hay, P. (2009) Defining, acquiring and transacting cultural capital
861 through assessment in physical education, *European Physical Education*
862 *Review*, 15(3), 275-294.
- 863 Richard, J. F. & Godbout, P. (2000) Formative Assessment as an integral part of the
864 teaching-learning process, *Physical and Health Education Journal*, 66(3), 4-9.
- 865 Richard, J. F., Godbout, P., Tousignant, M. & Grehaigne, J. F. (1999) The try-out of a
866 team sport performance assessment procedure in elementary and junior high

867 school physical education classes, *Journal of Teaching in Physical Education*,
868 18, 336–356.

869 Robinson, S. (1992) *Assessment in Physical: A development programme* (Naffarton,
870 BAALPE).

871 Siedentop, D. & Tannehill, D. (2000) *Developing teaching skills in physical*
872 *education* (4th edition) (Mountain View, Mayfield).

873 Tinning, R. (1996). Discursos que orientan el campo del movimiento humano y el
874 problema de la formación del profesorado. *Revista de Educación*, 311 (123-
875 134).

876 Van Vuuren-Cassara, G., Lamprinou, I. (2006) The assessment of athletics
877 ‘knowledge’ with written and video tests, *Physical Education and Sport*
878 *Pedagogy*, 11(2), 119-140.

879 Veal, M. L. (1988) Pupil Assessment Perceptions and Practices, *Journal of Teaching*
880 *in Physical Education*, 7(4), 327-342.

881 Ward, P. & Lee, M-A. (2005) Peer-Assisted Learning in Physical Education: A
882 Review of Theory and Research, *Journal of Teaching in Physical Education*,
883 24, 205-225.

884 Wiggins, G. (1993) Assessment: Authentic, context and validity, *Phi, Delta, Kappan*,
885 75(3), 200-214.

886 Zhu, W. (1997) Alternative assessment: What, why, how. *Journal of Physical*
887 *Education, Recreation, and Dance*, 68(7), 17–18.

888 Zhu, W. (2007) Assessing Kinesiology Students’ Learning in Higher Education,
889 *Quest*, 59(1), 124-142.

890

891

Table 1 - Types of Assessment, Definitions and References

Types of Assessment	Definition	References
<i>Formative Assessment</i>	-Assessment process aimed at enhancing the teaching-learning procedures taking place -Any assessment process which helps: (a)-students to learn more and correct their own mistakes; (b)-teachers to learn to enhance their teaching practice and; (c)-subject or programme development to run at its best. The main objective is not grading but obtaining information about students, to know how to help students to improve their learning and for the teachers to learn how to enhance their teaching.	Brockbank and McGill (1999), Blázquez (1990), López-Pastor (2006)
<i>Alternative Assessment</i>	-All the assessing techniques and methodologies that transcend traditional assessment methodologies merely based on tests and exams and mainly aimed at grading, with a higher educational value.	Hay (2006), Hensley (1997), Hopple (1995, 2005), Macdonald & Brooker (1997), Mintah (2003), Melograno (1998, 2000), Zhu (1997).
<i>Authentic Assessment</i>	-It refers to the fact that assessing techniques, instruments and activities are clearly applied to learning in real-life situations, activities and contexts. -Use of a number of techniques and instruments enabling assessment of different skills and competences in more real-life situations or those translatable to real life, when outside of class	Desrosiers, Genet-Volet & Godbout (1997), Gréhaigne, Godbout & Bouthier (1997); Hay (2006), Hay & Penney (2009), Kirk & O'Flaherty (2004), Melograno (1997, 1998, 2000), Mintah (2003), Oslin, Mitchell & Griffin (1998), Richard, Godbout, Tousignant & Gréhaigne (1999), Richard & Goudbou (2000), Veal (1988).
<i>Integrated Assessment</i>	Assessment is integrated within the teaching-learning process and be part of it	Desrosiers, Genet-Volet and Godbout (1997), Melograno (1997), Richard and Godbout (2000)
<i>Learning-Centred Assessment</i>	An assessment system typical of educational systems focused on the students' learning. Students achieve a greater performance when using a learning-centred assessment.	Zhu (2007)
<i>Assessment for Learning</i>	Educational assessment must be clearly directed to enhance students learning, instead of just directed to check and grade their performance. The need to move away from a <i>Test Culture</i> to a <i>Learning Culture</i> .	Casbon & Spackman (2005), Desrosiers, Genet-Volet and Godbout (1997), Evans (2004), Hay (2006), Hay (2010), Hay & Macdonald (2009), Hopple (1995), Macdonald (2011); MacPhail & Halbert (2010), Robinson (1992).