Alternative Assessment in Physical Education: A Review of International Literature

Abstract

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

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

Alternative Assessment in Physical Education: A Review of International Literature

Introduction

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

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

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

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

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

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

Methodology and Design

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

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

Traditional and alternative approaches to assessment in physical education

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

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

Traditional forms of assessment: the case of Physical Fitness Tests

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

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

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

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

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

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

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

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

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

Studies of other traditional assessment methods

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

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

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

Alternative forms of assessment

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

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

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

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

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

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

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

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

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

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

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

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

Summary

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

A conceptual framework for assessment

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

INSERT TABLE 1 HERE

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

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

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

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

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

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

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

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

Alternative assessment in physical education pedagogical practice

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

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

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

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

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

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

New directions for research on assessment

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

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

- Future research needs to continue to monitor the extent to which assessment has become a regular, integral, widespread and productive (in terms of facilitating student learning) feature of physical education teaching;

- While advocacies for alternative forms of assessment are often passionate, we need to subject these approaches to critical scrutiny and ask whether they are successful or not in achieving their stated aspirations;

- We might ask, what are the barriers to teachers using these innovative ideas in their practice? Moreover, what kinds of support or advice do physical education teachers need to develop educationally sound, successful and sustainable forms of assessment?;

- Where alternative approaches to assessment have worked, we need to know what are the key points of its success?;

- We need further studies on the forms alternative assessment takes in physical education pedagogical practice, and to note in particular any adaptations made in the process of implementation, between conception and practice;

- What should be valued in physical education, now and into the future, and therefore what should be assessed and reported. If performances of physical skills or fitness are valued, then it is important to acknowledge that these are most likely to be measured. With global concerns, real or otherwise, for children's healthy body weight and fitness and global, online assessment tools available to measures these variables, it may be that PFTs experience a (re)surgence as legitimate assessment practices in physical education. If, however, students' *learning* is valued, then understanding what they know and can do in relation to their induction into a movement culture would drive assessment;

- We must acknowledge that what has been termed 'alternative' assessment is complex and requires teachers who have the time, resources, and expertise to construct worthwhile tasks, embed those tasks into the teaching and learning process, and implement them in valid and equitable ways. It is useful to recall the inter-relationship of Bernstein's three message systems – curriculum, pedagogy and assessment (Penney et al, 2009). Assessment needs to be integral to, and consistent with, what gets taught and how it gets taught and future research should acknowledge this in its questions and methodologies.

Conclusion

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

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

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

Authors

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

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

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

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

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

References

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

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

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). Enhacing student trust through peer-assessment
721 in Physical Education. *The Physical Educator*, 58(1), 30-39.
722 Carroll, B. (1994) *Assessment in Physical Education. Ataccher´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).

Hernández, J. L. & Velázquez, R. (Eds) (2004) *La evaluación en educación física. Investigación y práctica en el ámbito escolar* (Barcelona, Graó).

Hill, C. & Miller, T. (1997) A Comparision of Peer and Teacher Assessment of Students´ Physical Fitness Performance, *Physical Educator*, 54(1), 40-46.

Hopple, C. J. (2005) *Elementary Physical Education Teaching and Assessment. A practical guide.* (Champaign, Human Kinetics) (1ª ed, 1995).

Hopple, L. & Graham, G. (1995). What children think, feel and know about Physical Fitness testing, *Journal of Teaching in Physical Education*, 14(4), 408-417.

Huberman, A. M. & Miles M. B. (1994) Data management and analysis metods, in: N. K. Denzin & Y. S. Lincoln (Eds) Handbook of qualitative research (Thousand Oaks, Sage), 428-444.

Jackson, A.S. (2006) The Evolution and Validity of Health-Related Fitness, *Quest*, 58(1), 160-175.

Keating, X. D. (2003) The Current Often Implemented Fitness Tests in Physical Education Programs: Problems and Future Directions, *Quest*, 55(2), 141-160.

Keating, X. D, & Silverman, S. (2004) Physical Education Teacher Attitudes Toward Fitness Scale: Development and Validation, *Journal of Teaching in Physical Education*, 23 (2), 143-161.

Keating, X. D. & Silverman, S. (2004) Teachers' Use of Fitness Tests in School-Based Physical Education Programs, *Measurement in Physical Education and Exercise Science*, 8(3), 145-165.

Keating, X., Harrinson, L., Chen, L., Xiang, P., Lambdia, D., Davenhover, B. et al. (2009) An Analysis of research on Student health-related Fitness Knowledge in K-16 programs. *Journal of Teaching in Physical Education*, 28 (3), 333-349.

Kirk, D. (1990). *Educación Física y Currículum*. Valencia. Universidad de Valencia.

Kirk, D., & O´Flaherty, M. (2004) *Learning theory and authentic assessment in Physical Education*. Paper presented at the Physical and Sport Education SIG, Annual Conference of BERA.

Lincoln, Y. S. & Guba, E. G. (1985) *Naturalistic inquiry* (Neubury Park, Sage).

López Pastor, V.M. (1999) *Prácticas de Evaluación en Educación Física: estudio de casos en primaria, secundaria y formación del profesorado* (Valladolid, Universidad de Valladolid).

López Pastor, V. M. (Ed) (2006) *La Evaluación en Educación Física: Revisión de los modelos tradicionales y planteamiento de una alternativa: La evaluación formativa y compartida* (Buenos Aires, Miño y Dávila).

López-Pastor, V. M., Monjas, R., Manrique, J. C. (2011) Fifteen years of action-research as professional development. Searching more collaborative, useful and democratic systems for teachers, *Educational Action-Research,*19(2), 153-170.

Lorente, E. (2005) *Autogestión en Educación Física. Un estudio de caso en Secundaria (Self-management in Physical Education. A case study in Secondary School*) (Barcelona, Universidad de Barcelona).

Lorente, E. (2008) Estimular la Responsabilidad y la Iniciativa: Autogestión en Educación Física (Stimulating Responsibility and Initiative: Self-management in Physical Education), *Apunts Educació física i esport*, 92, 26-34.

Lorente, E. & Joven, A. (2009) Autogestión: Una investigación Etnográfica (Self-management: a Ethnographic Research), *Cultura & Educación*, 21, 67-69.

Luke, A. (1999) Education 2010 and new times: Why equity and social justice still matter, but differently. Paper prepared for *Education Queensland online 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., Lamprianou, 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

892 Table 1 - Types of Assessment, Definitions and References
893

Types of Assessment	Definition	References
Formative Assessment	-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)
Alternative Assessment	-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).
Authentic Assessment	-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).
Integrated Assessment	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)
Learning-Centred Assessment	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)
Assessment for Learning	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 *Test Culture* to a *Learning Culture*.	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).

894