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Assesment in physical education. Comparative analysis between the oficial theory and everyday practice

Evaluación en Educación Física. Análisis comparativo entre la teoría oficial y la praxis cotidiana

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Abstract

The aim of this research is to study the evaluation methods employed by physical education teachers in primary and secondary schools and to examine whether current trends in assessment in Physical Education (PE) are limited to a theoretical level or actually occur in everyday class practice in schools. To complete the objectives of the study, a random sampling was performed carried out on 84 PE teachers (male = 57, female = 27) of the Basque Country (ACBC). The results indicate that teachers have abandoned the traditional method of evaluation and there is evidence of progress toward alternative assessment, although this has not come to be fully implemented in schools. In line with these results, we found differences in the aspects of assessment that could be improved in daily practice in the various stages of education. Teachers of secondary education should encourage students to assess the teaching-learning process, the evaluation criteria and the teachers themselves. Teachers of primary education should work to help understand the process of assessment not only as a method of evaluation, but also as an instrument for a broader understanding of learning and process evaluation. Both, primary and secondary P.E. teachers should be encouraged to include self-assessment and peer assessment as routine methods of evaluation.

Keywords

Physical education; assessment; primary education; secondary education.

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Resumen

El objetivo de este estudio es conocer las maneras de evaluar que emplea el profesorado de Educación Física (EF) en las etapas de Educación Primaria (EP) y Educación Secundaria Obligatoria (ESO) y conocer si el discurso actual sobre evaluación en EF se limita al ámbito teórico o realmente se da en la praxis cotidiana de los centros escolares. Para cumplimentar los objetivos del estudio, se realizó un muestreo aleatorio y se realizó una encuesta a 84 docentes de EF (hombres=57, mujeres=27) de la Comunidad Autónoma del País Vasco (CAPV). Los resultados indican que los docentes han abandonado el método tradicional de evaluación y hay una evidencia de progreso hacia la evaluación alternativa, a pesar de que esta no se haya llegado a implementar totalmente en los centros educativos. En línea con estos resultados, encontramos diferencias en los aspectos de evaluación que son susceptibles de mejora en la práctica cotidiana según la etapa educativa. En lo que respecta a los docentes de la ESO, sería conveniente que incorporaran prácticas en las que sea el alumnado quien evalúe el proceso de enseñanza-aprendizaje, la evaluación y a los docentes mismos. Por otra parte, sería aconsejable que el profesorado de EF en la etapa de EP trabajara para entender la evaluación como un medio para diversos fines, y no principalmente como un método de calificación. Además, es aconsejable que los docentes de ambas etapas educativas incluyan la autoevaluación y la coevaluación como un método habitual de evaluación

Palabras clave

Educación Física; evaluación; Educación Primaria; Educación Secundaria.

Assessment is a vital element of education (Kyrkiris, Derri & Kioumourtzoglou, 2006) as it helps to improve the curriculum process for better performance and results (Rotger, 1990). Although improving assessment means to improve education, evaluation is one of the most problematic issues of education, also in Physical Education (PE) (Lopez Shepherd, Kirk, Lorente-Catalan, MacPhail & Macdonald, 2012). What is our profession, teach and promote learning, or control, measure, record, qualify and select?

In the field of PE, traditionally the only purpose of the evaluation was performance verification, so that the physical test were the most popular tool for assessing (Pastor Lopez, 2006). However, they have been criticized for not being able to generate learning in PE

(Tinning, 1996), and because students reject fitness tests as part of the evaluation and final qualification (Silverman & Subramamam 1999).

In the dominant model of performance testing assessment has not any relationship with the contents of the lessons or with the curriculum itself, being loose and independent practices (Blázquez, 1993). Their sole purpose was to obtain information about the fitness level of the students (Stufflebeam & Shinkfield, 1987) to qualify and assign a mark. In addition, that assessment focuses exclusively on the final part of learning process, and the student was the only element that was taken into consideration.

In the twentieth century, new proposals for evaluation in PE emerged, especially for Primary Education and Secondary Education (Diaz, 2005) in response to the mentioned problems (Hay & Penney, 2012; Lund & Veal, 2013; Ní Chróinín & Cosgrave, 2013; Redelius & Hay, 2012). In scientific literature we find many terms to describe these new evaluation proposals that differ from the traditional one, such as integrated assessment (Zhu, 2007), authentic assessment (Hopple, 2005), the evaluation focused on learning (Zhu, 2007), the assessment for learning (Hay, 2010; Macdonald, 2011; MacPhail & Halbert, 2010) and the formative assessment (Pastor Lopez, 2006) among others. These evaluation proposals are also reflected in the current educational legislation, as both the Organic Law of Education 2/2006 of May 3 (LOE) and the Organic Law for the Improvement Educational Quality 8/2013, of December 9 (LOMCE) talk about an assessment of student learning processes that has to be continuous, global, formative and inclusive.

As has been used in several investigations (Hopple, 2005) in the development of this study we will use the term alternative assessment, used to refer to any assessment that is different from the traditional (Siedentop & Tannehill, 2000). The alternative assessment, understood globally, is the process of diagnosing, group, motivate, sort (Blázquez, 1993), provide useful information and improve the decision making process regarding the educational process (Stufflebeam, 1971), and verify the effectiveness of education system (Blázquez, 1993) through a high level of learning of the students (Ball & Forzani, 2009). Alternative assessment evaluates not only the students but also the process, programs, and teachers (Diaz,

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2005), and situations of self-assessment and peer assessment are introduced (Table 1), providing valuable information for both teachers and students (Stufflebeam, 1971). The use of self-evaluation, among others, encourage independent learning and personal reflection (Henninger & Carlson, 2011). Furthermore, to involve the student in his own assessment develops his autonomy (Ferrandiz, 2011). However, teachers use self-assessment sporadically and as a complement form of reference assessment models (López-Pastor et al., 2011).

Both the LOE and the Royal Decree 126/2014 support this aspect, indicating that the assessment must focus not only on students, but also need to evaluate teaching processes and the teaching function.

Table 1. Differences between traditional and alternative assessment.

	Traditional assessment	Alternative assessment
Objetive What for?	Qualify	Determine student's progress Diagnose problems in students Give feedback Grouping the students Regulate the teaching-learning process Plan future sessions Provide useful information Qualify
Tool How?	Physical test (delinked practices)	Sheets and sheets for students (self-assessment questionnaires ...) Student's notebook Teacher's Notebook Systematic observation (anecdotal record, checklist, rating scale ...)
Evaluator agent Who?	Teacher	Teacher Student (self-asesment) Classmates (peer assessment)
Evaluated agent Whom?	Student	Student Teacher

		Teaching-learning process
		Evaluation system
Moment	In the end	At the beginning
When?		During the process
		In the end

In order to carry out an alternative assessment teachers have to have deep knowledge on evaluation (Paterno, 2001), always developing an assessment that is consistent with the curriculum and with the criteria of student learning.

Considering that numerous studies have concluded that the knowledge teachers have about evaluation is in general low (Derri, Kouli & Emmanouilidou, 2013) and that it is common to find differences between the curriculum and assessment practices at school (Chan, Hay & Tinning, 2011), All teachers really made an alternative evaluation or they still use traditional assessments?, The evaluation uses to motivate, reflect and improve, or is it still used as a mere tool to qualify?, Are the process and the teacher evaluated, or continues assesing only the students ?. Definitively, is alternative assessment limited to the theoretical level, or indeed materializes in the daily practice of schools?

To answer the large volume of questions raised three objectives were formulated:

- To know what are the ways PE teachers use to evaluate in Primary and Secondary Education in the Basque Country.
- To compare the ways PE teachers use to evaluate according to educational stage
- To compare the official theory on evaluation in PE with daily practice in schools in the Basque Country.

Material y method

Participants

The population under study is the set of teachers who teach PE in the Autonomous Community of the Basque Country (ACBC) (Spain). To determine the total population the basque government census has been consulted, which provides details on the whole compulsory education centers. It has decided to take the schools as the unit. Of the total of

824 schools of Primary and Secondary Education of the ACBC, the questionnaire was administered to 132 schools. These schools were selected through a representative systematic random sampling of the population of PE teachers through a stratified election by educational stage (Primary and Secondary Education) and province (Alava, Vizcaya and Guipuzcoa).

After the fieldwork, taking into account that some teachers did not answer the questionnaire and that some schools had more than one PE teacher, we find that the actual sample size corresponds to eighty four (N = 84; men = 57, women = 27) PE teachers who answered the questionnaire (Table 2).

Table 2. Breakdown of the sample according to province, educational stage and school ownership.

	PRIMARY EDUCATION		SECONDARY EDUCATION		All
	Public school	Private school	Public school	Private school	
Álava	5	3	1	4	13
Vizcaya	19	6	9	11	45
Guipúzcoa	11	4	5	6	26
All	35	13	15	21	84

Once all the surveys were received a post hoc analysis with the actual sample size was performed, obtaining the real values of size effect and the observed power of the study. The post hoc statistical power calculated considering a sampling error of 5%, a sample size of 84 and an effect size of .03, was .80.

Instruments

The instrument used in this study is an ad hoc questionnaire composed of 72 statements on a Likert scale with five levels of response ranging from 1 (never/strongly disagree) to 5 (always/strongly agree). The claims were divided in 12 sections: personal data, importance of assessment, time of assessment, objective evaluation, evaluator agent, evaluated agent, what is assessed, assessment tool, why is assessed in that way, difficulty evaluation, time spent evaluating and qualifying breakdown.

To validate the questionnaire a combination of a technique of judges and a pilot study was choosen, to incorporate input from both experts and real teachers. Experts in the area of evaluation in PE consulted for technical judges were the following:

- Dr. Víctor Manuel López Pastor (Universidad de Valladolid)
- Dr. Domingo Blázquez Sánchez (Universidad Autónoma de Barcelona)
- Dr. Francisco Javier Castejón Oliva (Universidad Autónoma de Madrid)

Once reviewed and modified the relevant items, according to the inputs received from experts, ran to the realization of a pilot study involving 30 PE teachers. This allowed correct minor difficulties to improve the questionnaire that finally was sent to the total sample to collect information about the different selected variables.

Procedure

The questionnaire was sent by email to the selected schools. In the mail, besides the questionnaire, it was added a description in which the purpose of the research and instructions for completion was exposed, plus that the data confidentiality was guaranteed. Three weeks later another reminder email was sent to all schools whose teachers had not responded to the questionnaire, to remind its completion.

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Statistic analysis

Once all the data was collected, it has been carried out a descriptive statistical analysis of the variables corresponding to assessment in PE. The results were described by frequencies, percentages, means and standard deviations. To analyze the differences between assessment in Primary and Secondary Education independent samples t-test was done. Statistical analysis has been carried out with the Statistical Package for Social Sciences (SPSS Inc, version 20.0 Chicago, IL, USA) program. The statistical significance was $p < 0.05$.

Results

The average age of PE teachers participants in this study was 40.57 (± 8.5) years, with 14.45 (± 7.7) years of experience as teachers in that area. The majority of the teachers (82.1%) stated that the assessment is an important aspect of his educational work. There have been found significant differences ($p < 0.05$) among teachers of Primary and Secondary

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Education when carrying out the assessment concerning the methods, the purpose of the evaluation, the agent evaluator, the origin of assessment tools as well as priorities when assessing.

The results of this study have shown that the main evaluator agent is always the teacher, and although the number of teachers of Primary Education who say they always or almost always asses through self-assessment (7.1%) and peer assessment (3.6%) is higher than in Secondary Education, they are just isolated cases. Regarding the aim of evaluation, in answer to the question: who is evaluated? teachers had to mark a value between 1-never and 5-always for each option. Thereby, we have obtained the evaluated are always the students, although there are teachers who say that in their subject always evaluate teachers (11.9%), the process of teaching and learning (25%) and the evaluation system (14.3%) (Table 3). However, significant differences were found between the frequency with which they evaluated each at different stages, appearing a special rejection in Secondary Education to evaluate the teacher (2.47 vs. 2.98, $p = 0.05$).

Table 3. Evaluated agent

	Always	Almost always	Sometimes	Hardly ever	Never
Students	71%	13%	0%	0%	0%
Teacher	11.9%	11.9%	33.3%	26.2%	16.7%
Teaching-learning process	25%	26.2%	29.8%	11.9%	7.1%
Evaluation system	14.3%	13.1%	27.4%	27.4%	17.9%

Considering the average in the frequency of use, we can indicate that most extended evaluation methods are systematic observation (44%), teacher's notebook (29.8%) and student's practical projects evaluation (15.5%). The least used, however, are student's notebook (3.6%) and theoretical exam (2.4%). Although the use of the theoretical exam to

assess is not widespread, it is significantly more used (2.5 versus 1.56, $p < .000$) in the Secondary Education than in the Primary Education (Table 4).

Table 4. Use of the theoretical exam according to the educational stage.

	Primary Education	Secondary Education	All
Never	89.6%	41.7%	69%
Sometimes	6.3%	47%	23.8%
Always	4.2%	11.1%	7.1%

To know what they prioritize when choosing an evaluation method over another one it was asked: Why you evaluate like this?, having to give each option a value from 1-strongly disagree to 5-totally agree. According to what teachers manifest, all prioritize that the method answer the needs of the students (especially in Primary Education; 4.19 vs. 3.69, $p = .002$), that it helps achieving an individualization and that it is effective, regardless of the complexity or time it will take them to asses. In fact, although there is great variation in the time that PE teachers say they dedicated to the assessment they spend an average of 12.76 (± 13.76) hours for each of the groups to assess in the classroom, plus 13.77 (± 12.58) hours that invest outside the classroom to assess (look assessment tools, passing records, fill observation scales...).

Concerning the difficulties PE teachers find around assessment, they were asked to rate from 1-very difficult to 5-very easy the various aspects involved in it. Despite these difficulties vary according to educational level, we note that generally what is more difficult is to evaluate skills, to deal with diversity and to be fair to everyone. On the contrary, they find it easy to design the assessment tool and to asses the contents (Table 5). Furthermore, PE teachers find especially easy to evaluate contents relating to games, physical fitness and motor skills but not so much those related to body image and body language.

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Table 5. Difficulties in the assesment according to the educational stage.

	Primary Education		Secondary Education	
	M	SD	M	SD
Assess competencies	1.63	0.761	1.67	0.676
Establish criteria to assess student's results	1.64	0.785	1.78	0.760
Deal with diversity and be fair to all	1.71	0.771	1.61	0.766
Know what are the most appropriate tools	1.85	0.743	1.75	0.770
Know how to design assessment tool	1.85	0.850	1.83	0.811
Assess certain contents of PE	1.94	0.861	1.83	0.845

Due to they find it easy to design assessment tools, teachers tend to evaluate using a tool produced by themselves (73.3%) or another PE teacher of their school (14%). On those occasions in which they use standardized test (11.1%), they use tests like the yo-yo test, the Course Navette, the Eurofit battery or the Cooper test, implementing especially in the last courses of Primary Education and in Secondary Education (2.29 vs. 3.35, $p < .000$). PE teachers almost never (1.6%) permitted students to make their own assessment tool (Table 6).

Table 6. Origin of assessment tools according to the educational stage.

	All	Primary Education	Secondary Education
Own elaboration	73.3%	76.4%	70.8%
Made by another PE teacher of their school	14%	16.6%	12.5%
Standardized test	11.1%	5.7%	14.3%
Made by students	1.6%	1.3%	2.1%

PE teachers were asked about what did they asses for, and they had to answer with a value from 1-strongly disagree to 5-totally agree to each given option. If we compare why they asses, we found that the order of importance of each reason varies according to the educational stage (Table 7). While the main reason to evaluate in Primary Education is to determine the progress of students (mean = 4.31, SD = 0.85), in Secondary Education the

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main reason is to regulate the teaching and learning process (mean = 4.19, SD = 0.57). We also find that the second reason to asses in Primary Education is to qualify, long before than regulating the teaching-learning process, than planning future sessions or than giving feedback to the students. Moreover, they give the qualification a significantly greater importance than their colleagues of Secondary Education ($p = .04$). We found that both, Primary and Secondary Education PE teachers consider that one of the reasons with less weight to evaluate is to diagnose problems.

Table 7. Average frequency of assesment goal.

	Primary Education		Secondary Education		t	gl	p
	M	SD	M	SD			
Determine student progress	4.31	0.85	4.11	0.70	1.180	81	0.242
Qualify	4.29	0.92	3.83	1.08	2.045	68	0.045*
Regulate the teaching-learning process	4.17	0.883	4.19	0.57	-0.174	80	0.862
Plan future lessons	4.06	1.08	3.69	1.03	1.58	77	0.228
Give feedback to students	3.98	1.02	4	0.89	-0.099	79	0.921
Diagnose problems	3.90	1.20	3.33	1.12	2.202	78	0.031*

The results indicate that what is most evaluated is the attitude (mean = 4.88, SD = 0.326), wear appropriate clothing (mean = 4.61, SD = 0.728) and the achievement of the seted objectives (mean = 4.20, SD = 0.818). Although in most cases (77.45%) teachers asses students improvement compared to themselves, we also find that there are teachers (10.7%) that evaluate the achievement of the objectives of each student compared to other students, so they evaluate the pupil as better or worse than the rest of his classmates.

Discussion

Based on the results obtained and in contrast to previous researches that exposed the most widespread assessment model was the traditional (López Pastor, 2006), we conclude that at this time PE teachers of the ACBC do not evaluate following the traditional method. They have displace physical fitness test to the background, and they have give major importance to the attitude and to the achievement of the objectives. Additionally, some alternative tools

have been introduced as teacher's notebook. Although progress has been made, the current educational concepts about assessment are not still fully implemented in schools. Therefore, we can consider that we are in an intermediate point between traditional and alternative assessment.

On one hand, if we focus on the progress that has been made, we found that physical fitness and motor skills are no longer the most evaluated content. Similar results have been obtained in other studies (Sicilia et al., 2006). At the moment, when PE teachers asses they focus primarily on the attitude of students and in the achievement of the objectives. This change in evaluated contents has supposed a change in the used assesment tools too. Thus, they have begun to use tools such as teacher's notebook or systematic observation, displacing to the background physical fitness tests.

Despite this progress, and as already we indicated, the current educational concept about assesment that appears in the current educational legislation is not fully implemented in daily practice of PE teachers at school, so it is necessary to work around it to improve the assesment. This necessary work, should focus in particular in the evaluation agent, the agent evaluated and the purpose of the assesment.

The results of this study show that the evaluator agent is almost always the teacher and who is evaluated is the student, responding to traditional evaluation scheme. It is true that teachers have introduced some situations where self-assessment and peer assessment is carried out, nevertheless, are isolated cases and their weight is insignificant in the total volume of assessment. Regarding the evaluated agent, we found that in Primary Education teachers have started to introduce the assessment to the teaching-learning process, the teacher and the evaluation system. In Secondary Education, however, almost never asses another agent than the student, appearing a special refusal to evaluate the teacher.

Moreover, the concept of evaluation and qualification are still strongly associated and qualifying still plays an important role in the educational practices of PE teachers in,

especially among teachers of Primary Education. In this sense, our results are similar to those obtained in other studies (Sicilia et al., 2006).

It seems necessary to clarify that we found differences in the assessment according to the educational stage. We note that in Primary Education teachers tend to follow a more oriented alternative assessment pattern in the Secondary Education. It can not be fully explain the differences in the assesment between Primary and Secondary teachers, nevertheless, some possible reasons could be the presence of different evaluation criteria in each of the stages (Behets & Vergauwen, 2004), the existence of a higher academic standards as education level increases or different prior training of teachers.

Teachers consider that evaluation is a fundamental aspect and they spend a significant amount of time in their teaching; concretely an average of 26 hours per year to each of their groups. For this reason we can conclude that the aspects of the traditional evaluation present in schools are not due to lack of interest or investment of time, but because of the difficulties that PE teachers say they find around evaluation. Despité founded the difficulties are different depending on the stage, teachers generally express the most complex aspects of the assesment are to assess the skills and dealing with diversity.

To solve this problem, it is necessary that the teachers training centers take into account the difficulties surrounding the assessment that PE teachers express have, as well as certain aspects of the evaluation that still have not been fully implemented in the daily practice. It is understood to include all these aspects within their program and work on them will help to overcome difficulties and move towards an alternative assesment.

Moreover, it would be advisable that PE teachers that are currently developing their educational work to allow students to have more prominence in the assessment, including self-assessment and peer assessment as a routine method of evaluation. It would be desirable that Secondary Education teachers include practices where students evaluate the teaching-learning process, the evaluation system and teachers themselves. On his part, Primary

Education PE teachers should work to understand the evaluation as a means for more extensive purposes and not primarily as a method of cualifying.

Finally, we consider some limitations should be assumed in this study. The data for this investigation have been collected throw the responses of teachers about what they do, and we believe it would be advisable for future studies to have data from direct observation to bridge the gap between what teachers say about the assesment and what they actually do in their daily practice.

As a proposal for future research we suggest to repeat this study in another context for evaluating differences depending on location and time. Additionally, it would be interesting a study with the application of an intervention program that includes proposals raised in this paper for improving the evaluation system.

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