ICT in Physical Education from the perspective of students in Elementary School

Las TIC en Educación Física desde la perspectiva del alumnado de Educación Primaria

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Abstract

The introduction of information technologies and communication technologies (ICTs) in education has become a challenge and controversy. Challenge because it requires specific training of teachers, and controversy because in most schools the use of electronic devices such as tablets or smartphones is forbidden. The main objective of this study was to explore the habits in the use of ICT by primary school children and if they think this use makes easier or not their education, specially in Physical Education area. This research involved a total of 100 students (57 boys and 43 girls) aged between 6 and 12 years. For data collection, a questionnaire ad hoc with 15 questions has been developed. We obtained outstanding results regarding students who considered that the use of ICT facilitates their homework (67%), and the group of them who had at least once, realized activities such as orientation race or treasure hunt, 70% said that ICT would make them more attractive. Moreover, 81% of pupils studying last curses of primary have their own mobile phone. The most important conclusion for us is that technological advances should be used as pedagogical tools to improve and complement the different areas within the school curriculum and take advantage of the great reception they play in children and teenagers.

Key Words: Elementary School; Education; School; ICT; Physical Education; Teaching.

Resumen

La incorporación de las tecnologías de la información y la comunicación (TIC) a la Educación se ha convertido en un desafío y controversia. Desafío ya que requiere de una formación específica del profesorado, y controversia porque en la mayoría de los centros educativos el uso de diferentes dispositivos, por ejemplo de las tabletas o teléfonos móviles, está prohibido en el recinto escolar. El objetivo de este estudio ha sido explorar los hábitos en el uso de las TIC por parte de los escolares de Educación Primaria y su creencia de si les facilita su educación, más específicamente en el área de Educación Física. En esta investigación participaron un total de 100 alumnos (57 niños y 43 niñas) de entre 6 y 12 años. Para la recogida de datos, se ha elaborado un cuestionario *ad hoc* consistente en 15 preguntas. Como resultados destacables hemos obtenido que el alumnado considera que el uso de las TIC facilita mucho las tareas escolares (67%), y cuando se les plantea la realización de actividades como carreras de orientación o búsqueda del tesoro, un 70% dice que las TIC las haría más atractivas. Además de ello, un 81% del alumnado del tercer ciclo poseen teléfono móvil propio. Como conclusión más relevante podemos decir que los avances tecnológicos deberían ser utilizados como herramientas pedagógicas para la mejora y complemento de las diferentes áreas de conocimiento del currículo escolar y aprovechar la gran acogida que estas tienen en niños y adolescentes.

Palabras clave: Educación Primaria; Escolares; TIC; Educación Física; Profesorado.

Introduction

Technological advances have generated new oportunities on the teaching-learning process Educative area. Those advances could help the most avant-garde pedagogical perspectives according to educative laws. Even though Physical Educatino at school has not developed a direct link with new technology (Garcia &Sánchez, 2014), it cannot be unrelated since it can be an opportunity to improve de acquisition of important skills and abilities on a the school contemporary context.

ICT are a constantly updating concept born on the 70's and referring to technology as a information prosecution. According to the Real Spanish Academy dictionary (DRAE, 2014),

the term "technology" comes from a greek word, on one hand "téchnē", referred to technique or art, and on the other hand "logia" referred to the study of something. For the greek, technology was a applied knowledge, meaning, the "know how" something that has so much in common with procedure contents of Physical Education.

Referring to education, ICT open the door to a huge quantity of contents, which do not involve necessarily knowdlege. To make information turn into knowdlege, the students have to make it their own, gain control of it, and build their own knowdlege, based on constructivist theory and significant learning (Ausubel, Novak & Hanesian, 1978).

The link that they have with Physical Education, we can say that most of them are based on considerating ICT as something basic for the education and job of teachers in the class, as an invaluable resource at the time of teaching Physical Education (Capllonch, 2005). Authors like Guardia (2002), go beyond and they see ICT like a tool capable of incorporating new ways of knowledge between Physical Education teachers and students.

On the other hand, if we analyze, nowadays, the use of digital devices by the teachers is being doubtful because it is increasing the numer of people that claim to have more specific exams to access public teaching (ilió, 2014). The need of this kind of exams to access lets us see the concern of the Education Ministry about the formation level in ICT of the teachers after passing college, since in the past few years, teachers had to face the challenge of incorporating to their method this kind of resources for which they were not formed (García &Sánchez, 2014)

Finally, and facing data and cultural, organizative, economic, social and edcative changes in which ICT are taking part(Basadre, Herrera-Vidal & Navarro, 2015), we ask ourselves:

What is the school doing? It is used at school this amout of ideas, values and information created and spreaded by ICTs?, Are students prepared to face them without problems? Are there objectives and contents incorporated to teaching programmes to help students deal with this codes of audiovisual expression? and finally, what do the student thing?

In order to answer this, we settle as a **main obejctive** of this research, to know what students from Primary Education think about ICT, know what teachers are capable of with

these tools from the point of view of the students in the area of Physical Education and what attitudes they have related to the use of them in the class.

Investigation Method

Investigation Desingn

The research presented here it is an observational study, with descriptive character about the use, skills of teachers and ICT contributions to Physical Education from the point of view of Lugo school's students who realize extracurricular sports. A questionnaire of 15 closed questions was handed to them.

Subjects and context

A total of 100 out of 109 subjetcs participated, 57 boys (57%) and 43 girls (43%) from Primary Education. Their ages were between 7 and 12 years old $(M = 10,5; \ DT = 1,79)$. All of them practiced extracurricular sportive activities carried out by a local sportive association of Lugo's Council. This way we ensured the heterogeneity of the sample due to the different origin of different schools. Participants who did not study at least first grade of Primary Education were not considered as well as those who were already studying first grade of Secondary Mandatory Education, that is why three questionnaires were discarded. Besides, when the research was done, a total of 6 students were not at school, so they could not be considered either.

Data collection tool. The questionnaire.

In order to obtain data, a questionnaire ad hoc with 15 closed questions was elaborated. To do this, some steps were followed. First of them was the definition of the variable of measure, which in our case was the presence of ICT on Primary Education schools. In order to carry out this first step, we counted on with some help coming from experts on this area. Once we defined what we wanted to measure, the items that were going to evaluate it, keeping in mind the subjects of study and the answers format. The questionnaire was handed over to all students individually, explaining the researcher the possible soubts that could come out; specially to the little ones.

Statistical Analysis

For the statistical treatment of data, a descriptive statistic of variables and items studied was realized, expressing them on frequency tables (numerical control and percentages). All statistical calculations were made with the statistical programme IBM SPSS (v. 20.0).

Results

Once the participants covered and turned in the questionnaire, the answers were analyzed, so this way later, we could obtain the needed information to carry out the statistical studio to express it on frecuency tables.

Results of sociodemographic dimension according to gender, cycle, school type.

On table 1 can be observed data relatd to sociodemographic simension according to gender, cycle, age, and school centre expressed with frequencies.

Refering to gender, we con observe that boys percentage (57%) has more presence hat gils (43%) and we can also see that they come from public centres(42%), concerted (51%) and private (7%). By cycles, the first one represents a 25% of the total of the sample, the second cylce represents a 27% of the sample, and the last one a 47%. Referring to age, 13 subjects were 7 years old,; 12 were 8; 11 were around 9 years old; 17 were 10; 15 were 11, and 32, 12 years old.

Table 1. sociodemographic dimension results.

		Boys (%)			Girls(%)			Total (%)
		Cycle			Cycle			
		1º	2º	3º	1º	2º	3º	
	Age (years)	7-8	9-10	11-12	7-8	9-10	11-12	
School type	Public	8(8%)	6(6%)	8(6%)	2(2%)	7(7%)	11(11%)	42(42%)
	Concerted	6(6%)	10(10%)	16(16%)	7(7%)	3(3%)	9(9%)	51(51%)
	Private	1(1%)	-	2(2%)	1(1%)	2(2%)	1(1%)	7(7%)

Total (%)	15(15%)	16(16%)	26(26%)	10(10%)	12(12%)	21(21%)	
		57 (57%)			43 (43%)		100(100%)

Availability of devices and internet access dimension results.

The results of this dimension (table 2) show taht a 92% of the students in this research, have access to internet at home, against a 8% that does not have it, being this results similar on every educative cycle or age range.

The 85% of the students particiating, assures to have internet access at school, meanwhile 15% of them don't. Even though the percentage is high, takes to task the fact that students have more possibilities of internet acces at home than at school

a 96% of the subjects participating have computer at home. Only 4% of them do not have it

65% assures to spend less than an hour a day in front of the computer. A 15% an hour, a 9% two hours, while the 11% uses the computer more than 2 hours a day and a 80% does not spend more than an hour with computers.

About the use of computers at school, the 100% of the students assure to use computers only few times.

Table 2. Availability of devices and internet acced dimension results

VARIABLES		Boys(%)			Girs(%)			Total (%)
		Cycle			Cycle			
		1º	2º	3º	1º	2º	3º	
	Edad (años)	7-8	9-10	11-12	7-8	9-10	11-12	
¿Do you have internet access at home?	Yes No	13(13%) 2(2%)	16(16%) -	25(25%) 1(1%)	10(10%) -	10(10%) 2(2%)	18(18%) 3(3%)	92(92%) 8 (8%)
¿Is there internet access at your school?	Yes No	13(13%) 2(2%)	15(15%) 1(1%)	19(19%) 7(7%)	9(9%) 1(1%)	10(10%) 2(2%)	19(19%) 2(2%)	85 (85%) 15(15%)

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¿Do you have computer at home?	Yes No	13(13%) 2(2%)	16(16%) -	24(24%) 2(2%)	10(10%) -	12(12%) -	21(21%) -	96(96%) 4 (4%)
¿How many hour a day do you spend with the computer at home?	-1 h. 1 h. 2 h. + 2h.	8(8%) 2(2%) 1(1%) 4(4%)	11(11%) 2(2%) - 3(3%)	17(17%) 5(5%) 3(3%) 1(1%)	7(7%) - 1(1%) 2(2%)	9(9%) 2(2%) 1(1%) -	13(13%) 4(4%) 3(3%) 1(1%)	65(65%) 15(15%) 9(%) 11(11%)
¿And at school? ¿Do you usually use it?	Nothing Only few times Sometimes A lot	- 15(15%) - -	- 16(16%) - -	- 26(26%) - -	- 10(10%) - -	- 12(12%) - -	- 21(21%) - -	- 100(100%) - -

Teachers and ICT use dimension results

On table 3 it is shown that the 27% os the subjects considers that non of their teachers uses ICTs. On the other hand 39% of them assures that more than 3 teachers uses them in class. To make results complete: a teacher (19%), two (9%) and three (6%). Another interestin point, is that a 55% os the students considers that their teachers don't solve or less than they wish their doubts about ICTs. A 30% say that they don't help them at all, while a 15% consideres really helpful their help.

Table 3. Teachers and ICT use dimension results

VARIABLES		Boys (%)			Girls (%)			Total (%)
		Cycle			Cycle			
		1º	2º	3º	1º	2º	3º	
	Age(years)	7-8	9-10	11-12	7-8	9-10	11-12	
¿How many of your teachers use new technologies on their class?	Non 1 2 3 + de 3	2(2%) 5(5%) - 2(2%) 6(6%)	6(6%) 1(1%) 2(2%) 1(1%) 6(6%)	5(5%) 5(5%) 2(2%) 1(1%) 13(13%)	4(4%) 2(2%) 1(1%) - 3(3%)	3(3%). 1(1%) 2(2%) - 6(6%)	7(7%) 5(5%) 2(2%) 2(2%) 5(5%)	27(27%) 19(19%) 9(9%) 6(6%) 39(39%)

¿Does the teacher solve doubt you may have with new technologies?							
Nothing	3(13%)	4(4%)	6(6%)	5(5%)	3(3%)	8(8%)	29(29%)
Only few times	5(13%)	4(4%)	4(4%)	3(3%)	2(2%)	8(8%)	26(26%)
Sometimes	3(13%)	7(7%)	10(10%)	2(2%)	6(6%)	2(2%)	30(30%)
A lot	4(13%)	1(1%)	6(6%)	-	1(1%)	3(3%)	15(15%)

Results to the question if they had a personal phone.

We obtained data like the 43% of the students o Primary Education have their own phone agaínts a 57% of them who does not have it yet, if we keep an eye on the cycles and age range, is the third cycle, boys and girls from 11 to 12 years, the ones who have a higher percentage, since it is a 40% who has it while only a 7% does not (table 4).

Table 4. Results to the question if they had a personal phone

VARIABLES		Boys(%)			Girls (%)			Total (%)
		Cycle			Cycle			
		1º	2º	3º	1º	2º	3º	
	Age (years)	7-8	9-10	11-12	7-8	9-10	11-12	
¿Do you have you own phone?	Yes	-	1(1%)	22(22%)	-	2(2%)	18(18%)	43(43%)
	No	15(15%)	15(15%)	4(4%)	10(10%)	10(10%)	3(3%)	57(57%)

Physical Education and ICTs use dimension results

On table 5 it can be observed that data reveals that 67% of the students agrees strongly or agrees to the fact that ICT make easier school tasks. The 18% does not say if they are or not agree, and 15% of them say they do not agree with this.

A 70% of the students, agrees or strongly agrees to the fact that it would be fun tu use ICTs in Physical Education class, while the 28% does not know, and 11% considers that it would not be fun.

On the other hand, a 49% believes that the use of ICTs would not help at all or just a little bit to increase their skills during Physical Education class. A 23% of the sample neither agrees or not, while a 28 % of it agrees or strongly agrees to the fact that they would help them improve their skills. Finally, most of them, 91%, confirm to have done a orientation race

or an activity such as the treasure hunt Only 9 % of them have never participated in a activity like this, letting us see that this kind of activities are successful.

Table 5. Physical Education and use of ICTs dimension results.

VARIABLES		Boys (%)			Girls (%)			Total (%)
		Cycle			Cycle			
		1º	2º	3º	1º	2º	3º	
	Edad (años)	7-8	9-10	11-12	7-8	9-10	11-12	
¿Do you think that using technologies makes school task easier?	I strongly disagree	2 (2%)	1(1%)	1(1%)	1(1%)	-	1(1%)	6(6%)
	I disagree	4(4%)	-	1(1%)	-	2(2%)	2(2%)	9(9%)
	Not disagree not agree	3(3%)	2(2%)	6(6%)	2(2%)	3(3%)	2(2%)	18(18%)
	I agree	1(1%)	3(3%)	8(8%)	2(2%)	4(4%)	7(7%)	25(25%)
	I strongly agree	2(2%)	9(9%)	11(11%)	5(5%)	3(3%)	12(12%)	42(42%)

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¿Do you use or have you ever used technology in Phyical Education class?								
	Yes	10(10%)	1(1%)	2(2%)	3(3%)	1(1%)	5(5%)	22(22%)
	No	5(5%)	15(15%)	24(24%)	7(7%)	11(11%)	16(16%)	78(78%)
¿Do you think it would be fun the use of technology during Physical Education class?	I strongly desagree	-	-	3(3%)	1(1%)	-	2(2%)	6(6%)
	I disagree	-	-	2(2%)	1(1%)	-	2(2%)	5(5%)
	Not disagree not agree	2(2%)	3(3%)	2(2%)	3(3%)	-	8(8%)	18(18%)
	I agree	3(3%)	5(5%)	7(7%)	2(2%)	5(5%)	6(6%)	28(28%)
	I strongly agree	6(6%)	8(8%)	14(14%)	2(2%)	6(6%)	6(6%)	42(42%)
¿Do you think technology would be helpuf to improve your Physical Education skills?	I strongly disagree	3(3%)	6(6%)	10(10%)	1(1%)	5(5%)	5(5%)	30(30%)
	I disagree	2(2%)	2(2%)	6(6%)	1(1%)	2(5%)	4(4%)	19(19%)
	Not disagree not agree	6(6%)	3(3%)	3(3%)	3(3%)	2(2%)	6(6%)	23(23%)
	I agree	-	3(3%)	6(6%)	2(2%)	4(4%)	2(2%)	17(17%)
	I strongly agree	2(2%)	1(1%)	3(3%)	1(1%)	1(1%)	3(3%)	11(11%)
¿Have you ever participated in a an orientation race or activity such as trasure hunt?	Yes	12(12%)	16(16%)	26(26%)	7(7%)	12(12%)	18(18%)	91(91%)
	No	3(3%)	-	-	3(3%)	-	3(3%)	9(9%)
¿Do you think that the use of a tablet or smartphone would make more interesting these activities?	I strongly disagree	3(3%)	5(5%)	3(3%)	1(1%)	3(3%)	1(1%)	16(16%)
	I desagree	3(3%)	-	6(6%)	-	4(4%)	3(3%)	16(16%)
	Not disagree not agree	1(1%)	3(3%)	4(4%)	1(1%)	-	4(4%)	13(13%)
	I agree	5(5%)	10(10%)	10(10%)	2(2%)	8(8%)	10(10%	45(45%)
	I strongly agree	3(3%)	1(1%)	3(3%)	2(2%)	1(1%)	-	10(10%)

Discussion

Once we finish our research, in which e wanted to know more about waht students thought of using ICT in Physical Education class, we could say that Physical Education is an curricular area with eminently procedure contents related to physical activity while the use of ICTs is mostle related to sedentary activities and mostly intelectual basis.

However, in this "Knowdlege Society" (Drunker, 1969), in which we talk about skills instead or knowledge, ICTs have place in any curricular area, since we cannot forget about their instrumental approach.

On our research there is data that reveals that most of the students has availability and access to internet at home. One of the reason why this percentage is so high may be due to the huge number of students living in urban areas. According to Statistics National Institute (SNI 2013) 11,1 milion homes, the 69,8% of spanish homes, had internet access, a 3,2 more than the previous year. That is why the obtained data are extremely positive and shows that the digital gap, at least referring to internet access, is becoming narrower.

Even though at home most of them had access to internet, is not like that at the schools

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from where the participating students came from. This has to be considered, because the objetive must be having in all schools available high speed Internet, something that most of the schools do not have since according to

"espazoAbalar" (2014) data, only 171 Galician centres have internet access. Against this data, the one taken from SNI(2013) showing Galicia at the bottom of Autonomous Communities referring to the use of computers and Internet, as well as Extremadura and Melilla.

As it is shown in the results, the use of computers and internet at home is not much. Against this results, the ones obtained on a research elaborated on 2012 by the college Rey Juan Carlos (URJC) in which it was said that seven out of ten teenagers spent on internet around two hours a day, mainly to listen to music or chat with frients, practices started between 6 and 9 years.

Another revealing point is that 100% of the participants considers to use the computer only few times at school. We must keep his in mind since a main objective of technology is to help the development of the teacher in class and look into contents and contrast their validity to make more efficient the job of all educative community members. Their use should be majoritarian if we keep in mind the the plans and projects of academic digital upgrade.

Refering to what students think about the use of ICT by their teachers, we may highlight that the results obtained contrast with those obtained with 2006 Education and Science Ministry's report which showed how Primary Education teachers usually used ICTs in a personal environment, but 70% did not use them many times or at all in class. Eight years later, from the students point of view this problem is still happening.

A remarkable fact obtained with our research is that most of the Primary Education students, specially from 11-12 years old, has personal phone. This trend did not exist a decade ago and it needs to be faced it in schools. Our data is similar to the one given by the Statistics National Institute (SNI 2013) which says that three out of ten students of 10 years, have their own phone. At the age of 12 a 69% of them has it, and at the age of 14, a 83% does.

The students see ICTs as something new and entertaining even more in Physical Education class. Asteachers we cannot spurn the possibilities that this technologies offer because they approach a triple gratification (Bartolomé, 2002). A feeling gratification, based on visual and audio incentives, a mental gratification coming from

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imagination and fantasy, and a cathartic gratification from the processes of identification and projection. Besides, their use is an excellent opportunity o conect with the student's concerns. The information obtained with our research referring to the point of view of the students related to the use of ICTs in Physical Education, confirm Palomo, Ruiz and Sánchez's thesis (2006) when it says that ICTs increase the commitment of the studens on their tasks, and also, they develop their initiative, because they have to take decisions,filter,choose, and select information all the time. These authors support that ICTs are step by step turning into a essential tool at schools. Informatic devices favour attitudes such as helpig each other, exchange of relevant information found in Internet or problems solution. They stimulate the people in the class to discuss and reach an agreement.

Like Martínex and Prendes say (2003), in many occasions, teachers fear technology and this fact makes them not take advantage of them. According to the obtained results, students think the same way. Even though most part of the students we analyzed in our research, considers that the use of ICTs would be fun, do not think the same about improving their skills .For example, the use of ICTs in activities like orientation races or treasure hunt is getting necessary because they offer a lot of advantages to the Physical Education teacher, making a leisure activity to learn playing and trying, having fun, and this way motivating (Querol,1998).

Conclusions

This article explored the possibility and potential of the use of ICts from the poin of view of the students and how they think it could help the quality in Physical Education practice, that is why, and based on the results we obtained, we can give an answer to the objetive we presented and highlight as the most relevant conclusions the following:

Primary Education students, consider that their teachers use only few times or less ICTs for their teaching tasks, that is why is needed to know the reason why. In order to increase the use, they need to be promoted since teacher's initial formation and permanently the acquisition of skills in this area in order to aply them to their professional development. There are accepted experiences on initial formation of Physical Education teachers such as the ones developed by Fernández-Basadre, Herrera-Vidal and Navarro-Patón (2015) and Navarro-Patón and García-Marín (2015).

Even if the students consider that the use of ICTs would make more entertaining their

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Physical Education classes, they are integrated in their daily lifes, they have infrastructure and material needed to involve them in school tasks, they perceive that their teachers do not really use them in class. That is why the use of phones and also those including GPS, touch screen, and internet access; and tablets should be used as resources at school, establishing a limit. As a general rule, this kind of devices, should be turned off at school and only turned on for the development of the activity. That is why a legal frame is needed to regulate their use.

Finally we wanted to point out that a research called "Understading Digital Kids" made by Jukes and Dosaj (2006), anticipatd this and developed a series og difference between what they call "digital native" (students) and "digital immigrants". For example, they assure that students prefer to get quick information from many media sources, while teachers prefer to give slow and regulated information from a limited numer of sources.

In 2004, tablets or smartphones did not exist, Facebook was just created and Wifi was coming out. In 2014 it is absolutely needed know how to manage digital devices to conect with the students. That is why, we shoul promote the use of this devices with educative objectives, because they are really accepted among th students and it is a demand in contemporary society.

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