

Sports activities in the natural environment: its representation in physical education textbooks in primary school

Actividades deportivas en el medio natural: su representación en libros de texto de Educación Física en Primaria

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Abstract

The objective of this research is to analyze the sport activities carried out in the natural environment represented in the textbooks of Physical Education (PE) in Primary Education (EP), published according to Organic Law of Education 2/2006, of May 3rd, (LOE). 4339 images have been analyzed, from 44 different textbooks, belonging to eight Spanish publishers. The SAIMEF (Physical Analysis Images Analysis System) tool, elaborated ad hoc, was used to analyze the content of the images. The pilot test, panel of experts and triangulation with several observers were some of the scientific criteria that endorsed this tool. The results show that the presence of images related to sport activities in the natural environment continues to be very scarce in PE textbooks. The editorial Teide represents in greater proportion this type of activities compared to the rest of publishers. In the third cycle appears a greater number of images, predominating drawings over pictures. The most represented sport activity is the orientation, with a 25.6%, included within the multidisciplinary sports, prevailing the terrestrial environment. The representation of sports in the natural environment varies according to the analyzed publishers. Thus, in Anaya and Bruño predominates the orientation, in Edelvives, Paidotribo and Serbal predominates the ski, and in the publishers Santillana and Teide prevails the escalation. It is necessary to reflect on the low representation of these activities in EF textbooks.

Keywords

Textbooks; physical education; images; physical activity; natural environment.

Resumen

El objeto de esta investigación es analizar las actividades deportivas realizadas en el medio natural representadas en los libros de texto de Educación Física (EF) en la etapa de Educación Primaria (EP), publicados en la Ley Orgánica 2/2006, de 3 de mayo, de Educación (LOE). Se analizan 4339 imágenes, recogidas en 44 libros de texto, pertenecientes a ocho editoriales españolas. Para el análisis de contenido de las imágenes se utilizó la herramienta SAIMEF (Sistema de Análisis de las Imágenes de Educación Física), elaborada *ad hoc*. La prueba piloto, el panel de expertos y la triangulación con varios observadores fueron algunos de los criterios de científicidad que avalaron dicha herramienta. Los resultados muestran que la presencia de imágenes referidas a las actividades deportivas en el medio natural continúa siendo muy escasa en los libros de texto de EF. La editorial Teide representa en mayor proporción este tipo de actividades con respecto al resto de editoriales. En el tercer ciclo aparecen un mayor número de imágenes, predominando el dibujo frente a la fotografía. La actividad deportiva más representada es la orientación, con un 25.6%, incluida dentro de los deportes multidisciplinares, prevaleciendo el medio terrestre. La representación de los deportes en el medio natural varía según las editoriales analizadas. Se hace necesario incluir una mayor representación de las actividades deportivas en la naturaleza, diversificando el mayor número de prácticas, en todos los medios de realización y reorientando el deporte en el medio natural, a la vez de un cambio de conciencia social.

Palabras clave

Libros de texto; educación física; imágenes; actividad física; medio natural.

Introduction

The adventure physical activities in nature (APAN) are defined by Olivera and Olivera (2016) as the “activities whose motor basis is sliding which takes advantage of the free power of nature by using technology and they are not based on training or seek performance”(p.73), understanding the body is not a means but rather the final depository of the emotions and sensations generated.

To these authors, the APAN have evolved from being a trend in posmodernity, as a reaction to sports, to consolidate nowadays as an alternative model in transmodernity (Olivera and Olivera, 2016). In Spain, Arribas et al. (2008) point out that during the first half of the 20th century, the APAN are institutionalized at the heart of hiking and leisure time associations, created initially for recreational, social and research purposes and later becoming the Federación de Montaña (Mountain Federation), after which time a wider range of activities appeared and even sportivized (climbing, ski, surf, etc.).

These activities can be developed in different mediums. To Olivera and Olivera (2016), who build a new taxonomy on APAN, there are four mediums in which such activities can be done: “Earth”, “Water”, “Air” and “Fire”, in which practices using the internal combustion engine such as trial, PWC, and ultralight aviation, are included.

This massive use of the sport practices in the natural environment during the last years (Fyall and Jago, 2009), has entailed an environmental concern for the negative impact such practices exert over the natural environment (Dingle, 2009); thus becoming a resource to understand and take care of the environment in a sustainable way (Baena and Granero, 2014).

In view of this concern, Olivera and Olivera (2016) classify the APAN in terms of their environmental impact in four levels: “A” (least environmental impact), “B” (low-intermediate environmental impact), “C” (high-intermediate environmental impact), and “D” (greatest environmental impact). Most of the practices done in the medium “Fire” would belong to the level “D” owing to their noise and visual pollution, as well as mountaineering and canyoneering; however, most of the “Air” practices have less impact, such as paragliding and hang gliding among others, and surf and windsurf. The other types are classified in the intermediate levels, as shown further on in the results section.

The competition in the natural environment generates a high negative impact due to the overcrowding and the erosion that it causes, while the sportsman often does not have any awareness of it (Funollet, Inglés and Labrador, 2016). In view of this situation, Felber (2012) suggests to change the sports paradigm, focused on competition, towards a more cooperative, healthier model with more contact with nature; from an educational point of view, the environment could be promoted as a leisure place and not just a competition field by organizing environmental restoration activities (Caballero, 2012; Funollet et al., 2016). In this line, Selhub and Logan (2014) state the natural environment has beneficial effects on the health.

Both the educative and the environmental awareness-raising possibilities the natural environment activities have make them a remarkable resource in the Physical Education program, and more specifically in the Primary School (Arufe, Calvelo, González, and López, 2012; Navarro, Arufe, and Sancosmed, 2015). Even more specifically, in textbooks, given the importance of the image as a transmitter of information and, especially, of hidden curriculum.

Various investigations have analysed the images in the Physical Education textbooks. The disparity amongst the different Physical Education content blocks has been proved, amongst other aspects, in favor of Sports, both in Primary (Moya, Ros and Menescardi, 2014) and Secondary education (González-Palomares and Rey-Cao, 2015), from the LOE (Organic Law of Education). In the analysis of the images in the Physical Education textbooks in Primary School, Moya et al. (2014) reveal that only 1.95% of the images represent activities in the natural environment. González-Palomares and Rey-Cao (2015) found only 9,7% of the photographs are related to activities in the nature.

Specifically, the sports practice in a natural environment has been analysed in a recent study (Moya-Mata, Ruiz, Martín, Ros and Mora, 2016), finding that, of 3836 images analysed in the Physical Education textbooks under the LOE, only 2.29% of them make reference to sports activities practiced in the natural environment. However, there was not found any image relating the physical activity adapted in the natural environment (Moya-Mata, Ruiz, Martín, Pérez, and Ros, 2017) out of the 3836 images analysed in the Physical Education textbooks in Primary.

These results contradict the legal framework under which the analysed textbooks were published, the LOE, since its Article 17 on the objectives of Primary Education explicitly

states: “h) To know and to value his/her natural, social, and cultural environment as well as the possibilities to preserve it”. Also the Article 3 of the Royal Decree 1513/2006 of 7th December, which establishes the basic curriculum for Primary Education, describes as a general objective: “to perform activities in nature and the importance of contributing to its protection and improvement”.

Despite the importance of this content block in the Physical Education subject, research on sports practices in PE textbooks is practically nonexistent: there is only one study on the Primary stage. For the aforementioned reasons, the object of study of this research is to analyse the images representing sports activities in the natural environment appearing in PE textbooks in Primary stage, assessing either the presence or the absence of stereotypes related to sports activities performed in the natural environment, in various publishing companies, under the LOE.

Material and methods

Methods

The study between the different textbooks was empirical, descriptive, and comparative (Heinemann, 2003). The images selected were the sampling units and they were studied through content analysis (Neuendorf, 2011), since it reveals all that is hidden or disguised in a message (Piñuel, 2002).

The content analysis was based on a category system, developed *ad hoc*, to analyse the images representing a person performing a sports activity in the natural environment. The preparation of the category system had as a reference the means used in the analysis of images in Primary stage by Moya, Ros, Bastida, and Menescardi (2013).

Sample

The sample was formed by 4339 images belonging to 44 PE textbooks, published by the eight existing Spanish publishing companies for the Primary stage. The publishing companies were: Anaya, Bruño, Edelvives, Inde, Paidotribo, Santillana, Serbal, and Teide. The criteria used during the selection of the sample were: a) textbooks and activity books, b) printed in Spain, c) edited in Spanish, d) published between 2006-2013, under the LOE, and e) relevance of the publishing companies at the national level. The sample selection was

intencional or convenient. All images representing a person performing a sports activity in the natural environment were analysed.

Procedure

The category system used as a tool to analyse the images was an adaptation of the category system prepared by Moya et al. (2013) for the Primary Education stage.

It consists of two big sections: one focused on the features of the image, in which the publishing company, the educational stage and the type of image are analysed; and another focused on the type of sports activity done in the natural environment, analysing the type of sport practiced in the natural environment, the environmental impact, the type of sport according to the Fortin (2008) classification and the medium where it is performed.

Analysis and processing of data

A descriptive analysis, from which the percentage of frequency among the images related to the activities in the natural environment extracted from eight Primary Education publishing companies: Anaya, Bruño, Edelvives, Inde, Paidotribo, Santillana, Serbal, and Teide ($n=86$) was performed. A descriptive univariate analysis was performed by means of SPSS 22.0 Statistics Base for Windows.

Results

The results of the analysis of the sports activities in the natural environment in Primary Education PE textbooks and activity books under the LOE show that only 86 images represent such activities. That is the 1.98% of the total sample.

With regard to the publishing companies analysed in this study and the number of images related to sports activities in nature, the publishing company Teide represents the highest number of sports, with 24 images -27.90%-, followed by Serbal with 17 images -19.77%-, Edelvives with 16 images -18.60%-, Bruño with 9 images -10.47%-, Paidotribo with 8 images -9.30%-, Santillana with 7 images -8.14%-, and Anaya with 5 images -5.82%-. It should be noted that the publishing company Inde did not include any image related to the natural environment. As illustrated in Figure nº. 1:

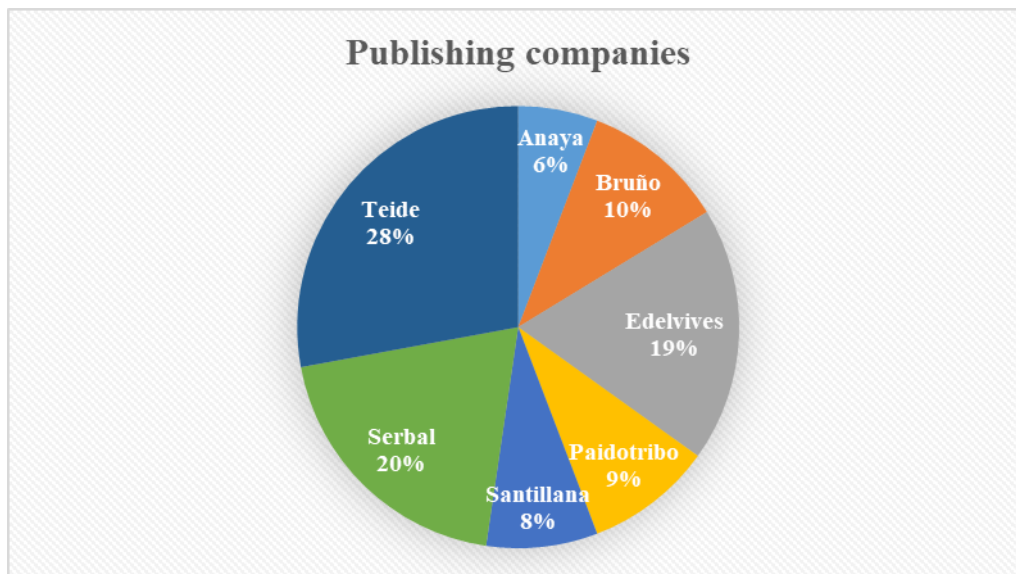


Figure nº 1: Presence of images of sports in nature in different publishing companies

The results obtained in the different cycles of Primary regarding the percentage of images related to sports activities in the nature are the following: firstly, the third cycle of Primary is the most represented with 50% of the images, the second cycle shows 29.07% of the representations and the first cycle would be in third place with 20.93%. As illustrated in Figure nº2:

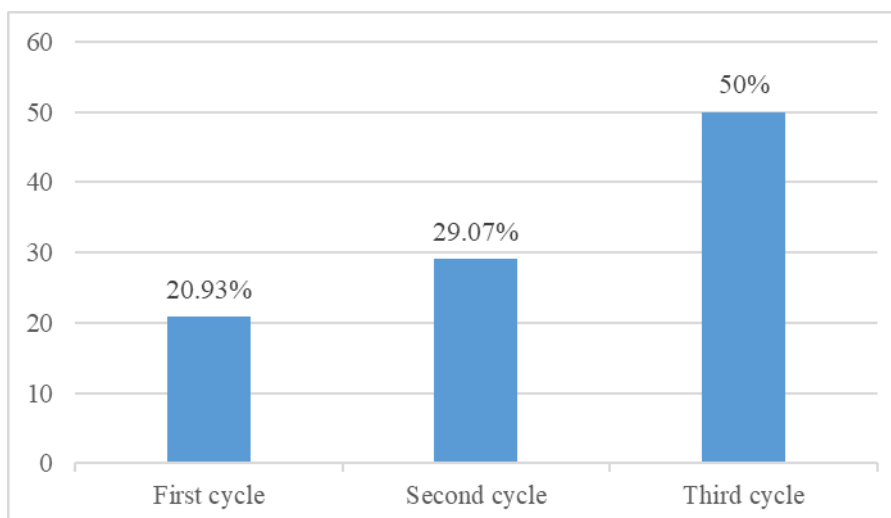


Figure nº 2: Representation of sports in the natural environment in the Primary cycles

The typology of image in the images analysed is 53.49% drawings and 46.51% photographs.

The most represented sports in the natural environment show 11 modalities, being orienteering the most represented sports activity -25.59%-, followed by climbing and skiing with the same percentage of representation each -18.6%-. The sports represented are illustrated in Figure nº3:

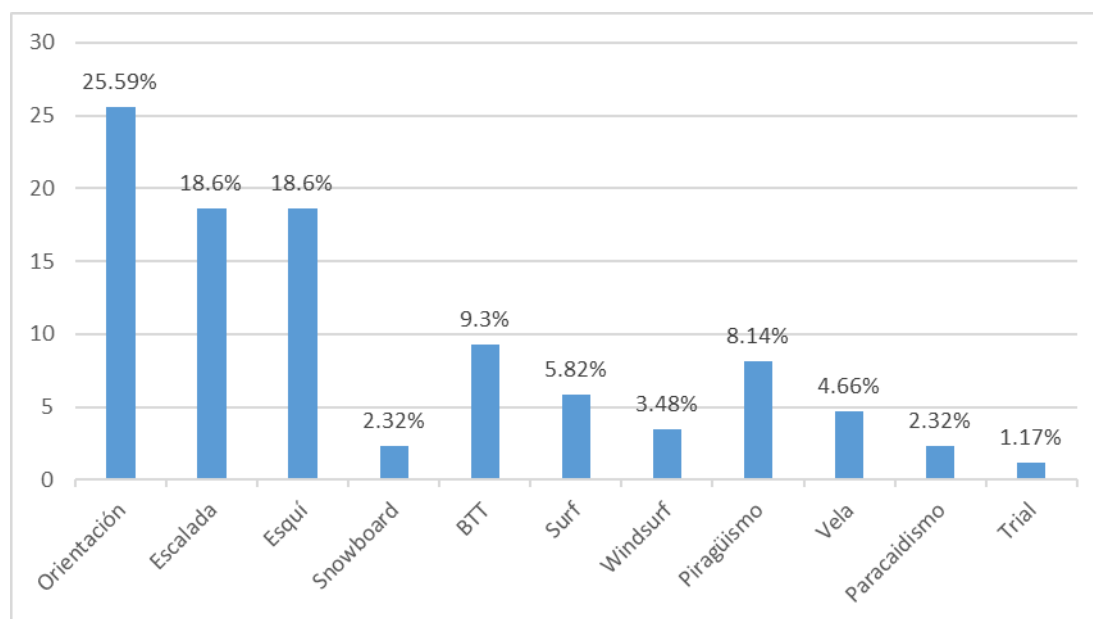


Figure nº 3: Sports in the natural environment represented in the PE textbooks

As observed, of the 11 sports practiced in the natural environment represented in PE textbooks according to the environmental impact they have, following the classification by Olivera and Olivera (2016), images of the sports in a level “C” of environmental impact prevail -51.16%-, which includes parachuting, mountain bike, skiing, snowboard and climbing. Sports with a level B of environmental impact, such as sailing, canoeing and orienteering, follow. The third most represented category are the sports with the least environmental impact (“A”) -9.3%-, such as surf and windsurf; and finally the sports with the greatest environmental impact (“D”) -1.17%-, trial. (Figure nº.4)

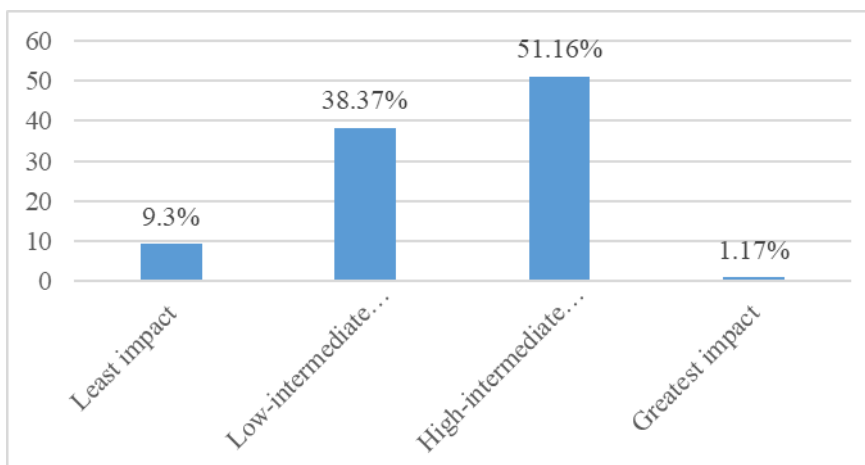


Figure nº 4: Classification of sports in the natural environment according to its environmental impact (Olivera and Olivera, 2016)

If the sports classification by Fortin (2008) is used, the sports in the natural environment most represented are the multidisciplinary ones (orienteering) -25.58%-, followed by nautical sports (canoeing, surf, windsurf and sailing) -22.1%-, and snow sports (skiing and snowboard) -20.93%-, as illustrated in figure nº5:

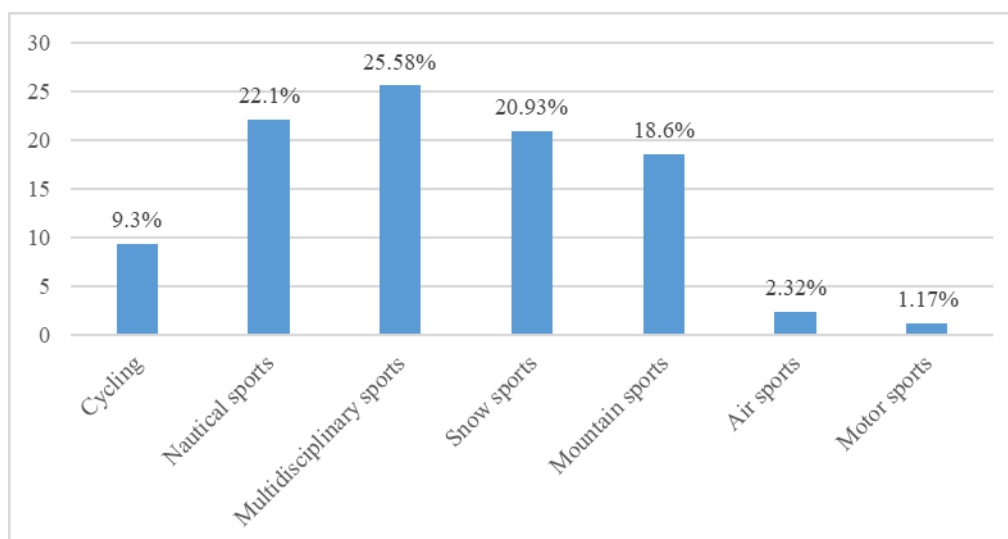


Figure nº 5: Classification of sports in the natural environment (Fortin, 2008).

Regarding the most frequent medium in the sports practice in the natural environment, the Earth is the most selected medium with 74.41%, followed by Water with 22.1%, Air with 2.32%, and Fire with 1.17%.

Finally, as proved if the most represented sports in each and every one of the publishing companies are analysed, orienteering predominates in the publishing companies

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Anaya and Bruño -60% and 100% respectively-, in Edelvives, Paidotribo and Serbal skiing predominates -31.25%, 37.5% and 29.41% respectively- and so does climbing in Santillana and Teide -28.6% and 29.2% respectively-, as illustrated in Figure nº6:

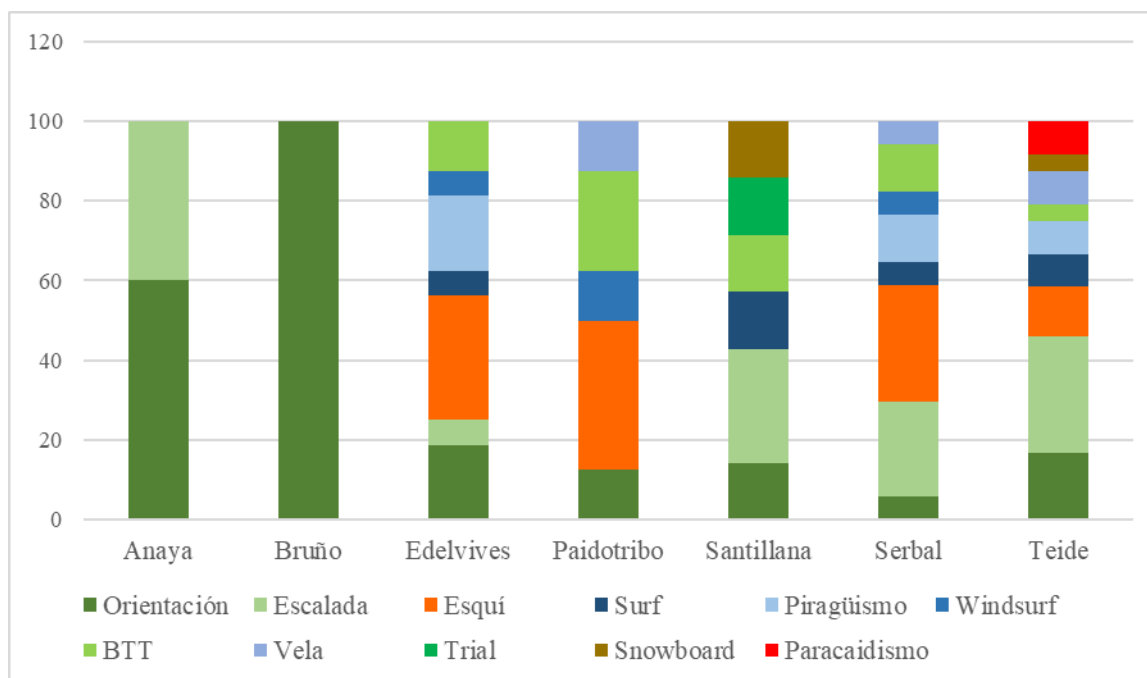


Figure nº 6: Representation of sports in the natural environment according to the publishing companies

Discussion

These results confirm the sports practices in nature still have a very low presence in PE textbooks, both Primary and Secondary Education under the LOE (González-Palomares and Rey-Cao, 2015; Moya et al., 2014), despite being a good resource in the PE area, due to the positive values they transmit and the improvement of environmental awareness amongst the students (Arufe et al., 2012).

The results obtained in this study agree with those obtained in an earlier study (Moya-Mata et al., 2016) in the highest presence of images in the third cycle, and in the predominance of drawing over photography as well as in the most represented sports activities in nature. Orienteering is the predominant sport, followed by skiing and climbing.

Studies on the inclusion of content related to activities in nature by PE teachers in their curriculum confirm orienteering, along with hiking, are the most developed contents both in Primary (Navarro et al., 2015) and Secondary (Granero et al., 2010; Peñarrubia, Guillén and Lapetra, 2016). However, these results disagree with the limited practice of climbing at school level (Macías, 2014; Navarro et al., 2015). PE textbooks in Primary also represent this reality, since orienteering is the most represented sports activity in the images (Moya-Mata et al., 2016). The predominance of orienteering might be due to the possibility of being practiced both in school as well as in nature (Rubio and Hernández, 2009), with or without specific equipment (Granero et al., 2010).

Of all the sports analysed in PE textbooks, there was not found any image representing sports adapted in the natural environment, thus going against the action plan established in the last International Mountaineering Congress CIMA2015, which specified as an objective, amongst others, the integration of each person in the mountaineering activities and the improvement of the accessibility to the mountain for people with disabilities (Nasarre, 2016), like para-climbing or competitive climbing for people with disabilities. This result agrees with a recent study by Moya-Mata et al. (2017) on the images related to disability in PE textbooks in Primary, in which none of the 24 images found, -0.62%- of the total sample, made any reference to sports activities in the natural environment, only to sports and, in a lower proportion, to traditional games.

Regarding the analysis of the environmental impact of the sports activities represented in PE textbooks, it is observed, despite initial expectations, the predominance of sports with an intermediate impact (“B” and “C”) (Olivera and Olivera, 2016), while the greatest environmental impact sports are represented only in 1.17% of the images. This shows textbooks contribute to social and sustainable awareness of the environment (Baena and Granero, 2014).

According to the sports classification by Fortin (2008), the most represented sports in the natural environment are the multidisciplinary ones, followed by nautical sports and snow sports. Specifically, the study by Moya-Mata et al (2016) vinculates snow sports with men

and nautical sports with women. Mountain sports are relegated to a fourth place. This result agrees with one of the strategies of CIMA2015: “to promote the awareness and education of citizens and public organizations in aspects related to mountaineering” (Nasarre, 2016, p. 101), since PE textbooks are a huge vehicle of transmission of information through images related to mountaineering.

Regarding the medium in which the sports activities in the natural environment are done, the land predominates, with almost 75% of images. PE teachers must take advantage of this to work in class mountaineering values related to the preservation of the environment and the diversification of the mountaineering zones to avoid an excessive frequentation, informing them of the risks inappropriate or vast sports practices imply (Nasarre, 2016).

Finally, it should be noted that the sports in the natural environment represented in PE books in Primary vary depending on the chosen publishing company. In Anaya and Bruño orienteering predominates, but in Edelvives, Paidrotribo and Serbal skiing is the most represented sport, while Santillana and Teide represent mainly climbing. This shows the choosing of the publish company will determine the message received by the children.

Conclusions

Regarding the object of this research, sports activities in nature represented in PE books in Primary stage have been analyzed, thus confirming they are insufficient.

These activities appear mainly in the third cycle of Primary Education. Orienteering is the most represented activity as opposed to other modalities. There was not found any sport adapted to the natural environment, which must be remarked.

The level of environmental impact represented in the images is high-intermediate in more than a half of them.

A higher representation of the sports activities in nature must be pursued, diversifying the number of practices, in every medium, and reorienting sports to the natural environment

towards a more educational perspective, pursuing also a change in the social awareness focused on preserving the environment as source of wellness and health. The images representing sports activities aggressive to the environment, such as trial, shall appear indoors due to the environmental impact they have. In order to respond to the PE curriculum established by the Royal Decree 1513/2006 of 7th December, a more balanced representation of images showing sports activities is recommended. There is also a need for inclusion of sports adapted in the natural environment.

The information transmitted by PE textbooks in Primary Education needs to be analysed to select the most appropriated in order to achieve the comprehensive education of the student body.

Further studies regarding the representation of this type of images related to the sex of the participants are proposed, thus complying with the principle of equal opportunities.

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